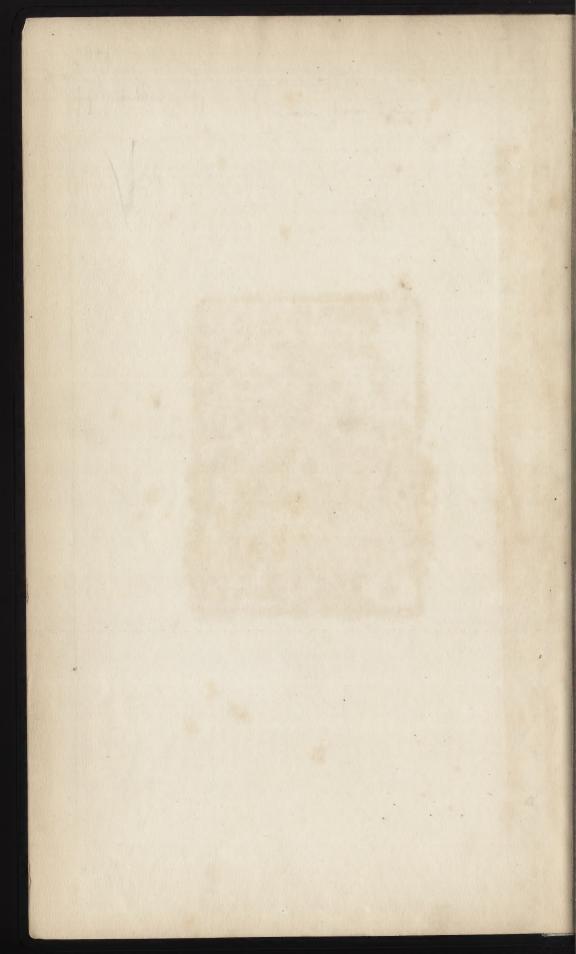




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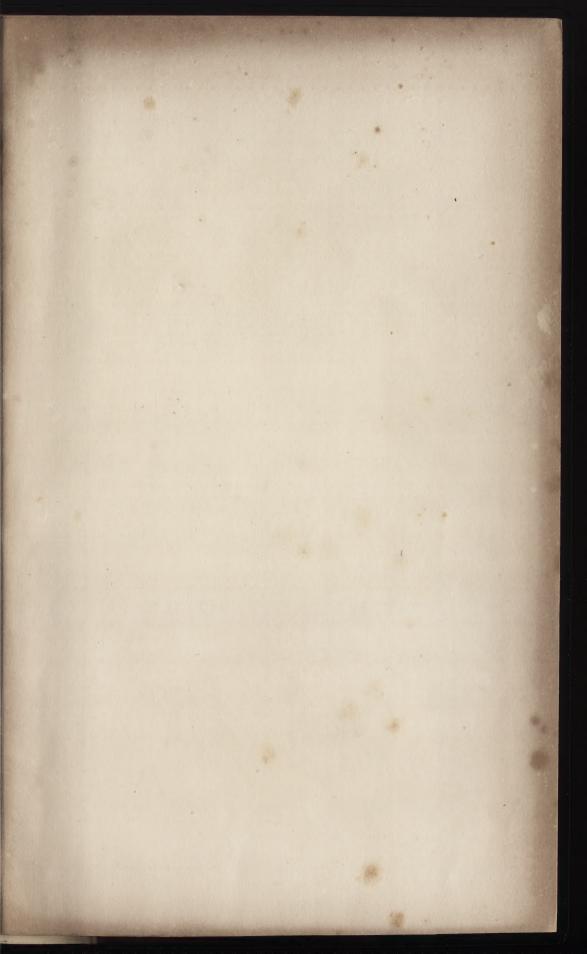
# TREATISE ON PAINTING

BY

CENNINO CENNINI.

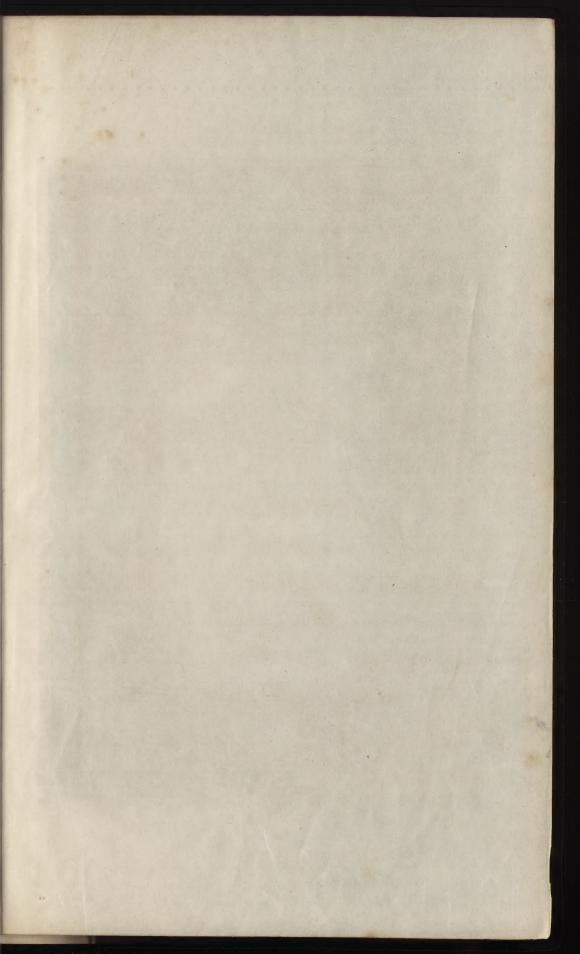
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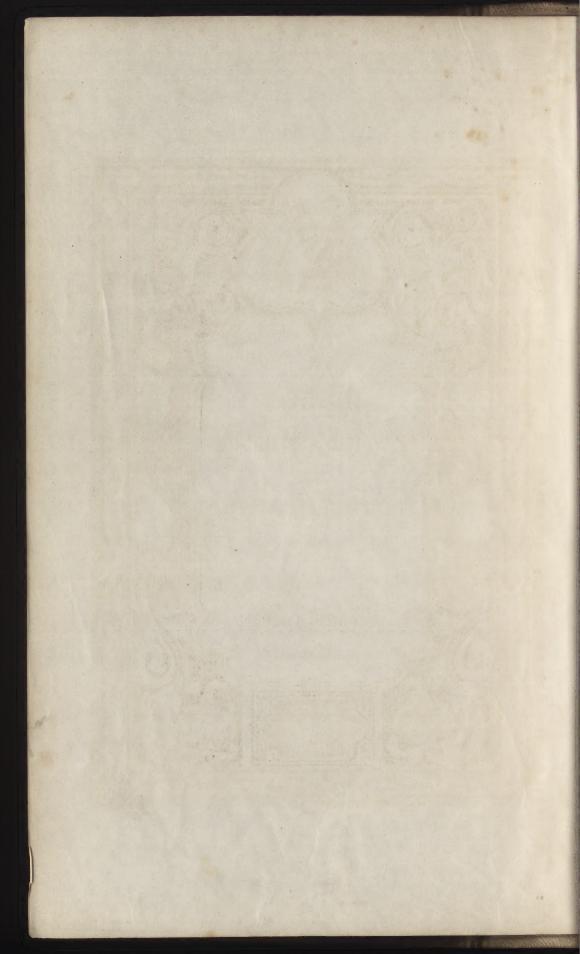
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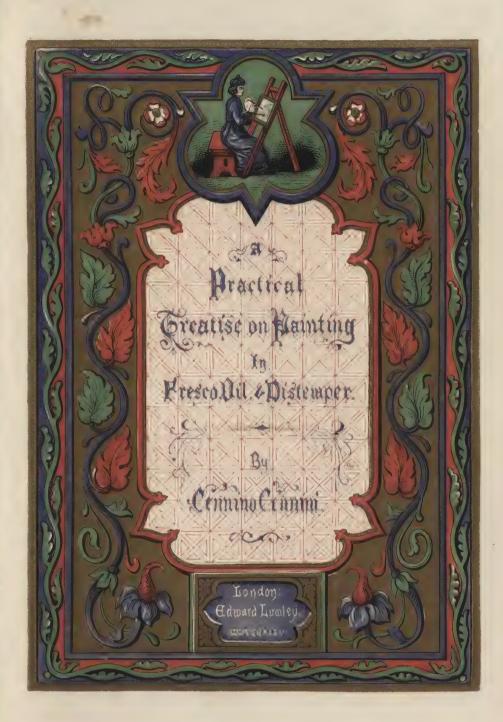




Virgin and Child Squarecones. In the Possession of the Larrara Tamily at Padua.









# TREATISE ON PAINTING,

WRITTEN BY

# CENNINO CENNINI

IN THE YEAR 1437:

AND FIRST PUBLISHED IN ITALIAN IN 1821, WITH AN INTRODUCTION AND NOTES,

By SIGNOR TAMBRONI:

CONTAINING PRACTICAL DIRECTIONS FOR PAINTING IN

FRESCO, SECCO, OIL, AND DISTEMPER,

WITH THE ART OF

GILDING AND ILLUMINATING MANUSCRIPTS

ADOPTED BY THE

Old Italian Masters.

"Of all the modes of painting used by the masters of these times, as well as by those who succeeded them, Cennino has composed the most complete treatise that has ever been written."

Tambroni.

TRANSLATED BY

### MRS. MERRIFIELD.

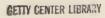
WITH AN INTRODUCTORY PREFACE, COPIOUS NOTES, AND ILLUSTRATIONS IN OUTLINE FROM CELEBRATED PICTURES.

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## LADY FOLLETT

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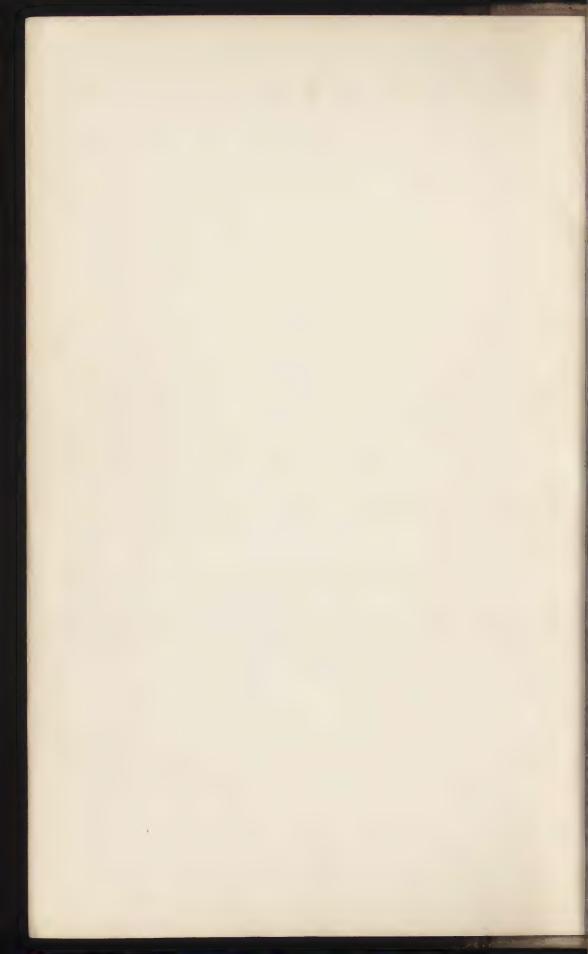
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## CONTENTS.

Armera		PAGI
AUTHORS QUOTED		x
INTRODUCTORY PREFACE BY THE TRANSLATOR		
SIGNOR TAMBRONI'S PREFACE		XXV
NOTES TO STONED TO STONE PORTS		-
Notes to Signor Tambroni's Preface .		13

#### PART THE FIRST.

Of drawing—commencement—motives for studying the arts
—what things are necessary—parts and members of the
arts—drawing on panels—the preparation and use of bonedust—drawing with stiles—of arranging the light to give
relief—drawing on parchment with stiles, lead pencils, and
pens and ink—how to make a pen—to draw on tinted
paper and parchment—to tint paper and parchment—to
prepare transparent paper—the importance of practising
drawing from nature, and after good masters—how a
painter should live—drawing with charcoal—drawing on
tinted paper with water-colours—heightening the lights
with white—of a stone for drawing resembling charcoal . 1-19

#### PART THE SECOND.

PREPARATION OF THE COLOURS—what are natural pigments—grinding pigments. Black pigments. Red pigments — sinopia — cinabrese—cinnabar—minium—amatito—dragon's blood—lake. Yellow pigments—ochre—

giallorino — orpiment — risalgallo — zafferano — arzica. GREEN PIGMENTS-verde terra-verde azzurro-orpiment and indigo - verde azzurro and giallorino - azzurro oltre marino with yellow-verderame-verde terra with white. White pigments—biacca—bianco sangiovanni. BLUE PIGMENTS—azzurro della magna—how to imitate it-azzurro oltre marino. Of hair pencils-to preserve the tails of the minever from being moth-eaten . . . 20-38

#### PART THE THIRD.

PAINTING IN FRESCO - to paint the faces of young persons of old persons - hair and beards - proportions of the human figure. To paint DRAPERY. To paint in SECCOproper temperas-mixed colours-purple in fresco and secco - to imitate azzurro oltre marino in fresco - to make purple in fresco. Changeable draperies—green -cignerognolo-lake-ochre-berettino. Mantle for THE VIRGIN-black drapery. To paint mountains, trees, buildings, &c., in fresco and secco-to draw a mountain . . . 39-55 naturally .

### PART THE FOURTH.

PAINTING IN OIL—on walls—to prepare oil by boiling or baking-to grind and use colours in oil-to paint in oil on iron, pictures, and stones—to adorn walls with tin necessity of using fine gold and good colours-to cut and use gilded tin-to make green tin-to gild tin, and lay on gold with gold size-to cut and attach stars to walls -to make the glories of saints, &c. -to make a glory in relievo with lime-after painting on walls, how to proceed 

#### PART THE FIFTH.

PAGE

Time required for learning to paint - what things necessary to be learned. To make GLUE of various kinds-flourpaste-glue for fastening stones-for joining glass vessels -fish-glue-colla di caravella, for tempering grounds on pictures-for tempering azure and other colours-cheeseglue . 

. 63-66

### PART THE SIXTH.

To BEGIN TO PAINT PICTURES—to fasten linen on panels—to prepare grounds of gesso grosso and gesso sottile-to grind and temper the gesso for working in relief-to smooth the surface—to draw on panels with charcoal, and fix outlines with ink-to make outlines of figures when gold grounds are to be used-to execute works in relief on pictures and walls. GILDING ON PICTURES—to lay on bole and verde terra—to gild panels—what stones are proper for burnishing—to burnish gold—what gold is proper-to form glories-to shade the gold, and draw outlines of figures on gold-to represent cloths of gold and colours—to draw and engrave on gold—DRAPERIES of gold, silver, or ultramarine—to imitate velvet, silk, or linen. To PAINT PICTURES IN DISTEMPER - to temper the colours. Draperies, blue, gold, or purple. To colour flesh generally—to represent a dead person—a wounded person-to represent water with or without fish. Mordants—to make and temper. Varnishing -how and when to varnish pictures-to imitate varnish. MINIATURES-to paint-to make a colour like gold, and to varnish verde terra. How to remove paint from the human face-why women should not use medicated waters on their skins. To TAKE CASTS FROM THE LIFE -of the face or whole figure-to multiply casts-to make casts of seals, coins, plants, &c. . . . . 67-107

x CONTENTS.													
											PAGE		
Conclus	SION								٠	•	107		
Notes							٠		•	٠	109		
INDEX					•		•	•	•	•	167		

# AUTHORS QUOTED.

Abbecedario (ed. Napoli), 129.

Alberti, Leon Batista, Treatise on Painting, 142.

Amoretti, Life of L. da Vinci, 140.

Armenini, Gio. Batista, Delli veri Precetti della Pittura, xxxiv., 128, 143, 159, 162.

Art-Union, Oct. 1841, v.

Baldinucci, Vite, xxvi. xxviii. xxxii. xlv. lv. lxi., 120. Vocabolario del Disegno, 121, 134, 143.

Bandini, Catalogo, xxvii. xxviii. lxi.Belli, Giambatista, MS. in the Magliabechiana, 109.

Bisagni, Francesco, Trattato della Pittura, xxxv.

Boccaccio, Decamerone, 113.

Boni, Elogio di Lanzi, lviii. lxix.

Borghini, Raffaello, Del Riposo, xxviii. 121, 161.

Boschini, La Carta del Navigare, &c., xiii.

Bossi, Giuseppe, Cenacolo di L. da Vinci, 136.

Bottari, Notes to Vasari, xviii. xxvii. xxxii.

Bulengero, 122, 123.

Ciampi, Sagrestia Ec., xix.

Cicognara, Storia della Scultura, vi. xiv. xvi. li. lii. lxv., 148, 158, 161.

Commissioners of Fine Arts, First Report, 120, 128.

D'Agincourt, lxvii.

Da Vinci, Leonardo, Trattato della

Pittura, x., 116, 127, 137, 140, 141, 146.

Davy, Sir Humphrey, Philosophical Transactions, 1815, xii. xiii. xv., 119.

De Dominici, Vite dei Pittori Napolitani, liii. liv. lxvii.

Democritus of Abdera, 123.

De Piles, Elémens de Peinture, 122, 127, 131, 148, 154, 158. Commentary on Du Fresnoy's Art of Painting, ix.

Dioscorides, 118, 145.

Facius, Bartholomew, De Viris Illustribus, lv.

Federici, xviii.

Field, Chromatography, xi., 117, 120, 123, 125, 138, 157.

Ghiberti, Lorenzo, Commentaries, lx. lxi., 111.

Guarienti, Abbecedario, lxvi.

John, Dr., 123.

Lanzi, Storia Pittorica, vii. xii. xvii. xxix. xlviii. lxiii. lxiv. lxv. lxvii. lxix., 113, 125, 132, 142, 143.

Lazzaroni, Dissertatione della Pittura, 118.

Lib. Ent. Knowledge, *Pompeii*, 152, 166.

Lomazzo, Paolo, viii.

Malvasia, Felsina Pittrice, xlvii.

Marcucci, Sagg. Anal. lxii., 125, 129, 144, 163.

Mattioli, Erbario, 118.

Merimée, Sur la Peinture à l'Huile, 161.

Mechel, Description of the Imperial Gallery at Vienna, lii.

Mireus, Albertus, Chron. Belg., 1410, lxviii.

Morelli, Notizie d'opere di Disegno, li. lviii. lxiv. lxv.

Moreri, Dictionnaire Historique, lxiii.
MS. Letter of Summonzio, collated by
the Abate D. Francesconi, lxvi.

MS. in the Biblioteca Capitolare at Lucca, lxii.

MS. of Massimo Stanzione, preserved by De Dominici, liii. lxvi.

MS. in the Library of the Conti Silvestri at Rovigo, 148.

Muratori, Antiq. Ital., 1xii.

Pandolfini, Del Governo della Famiglia, 163.

Piacenza, xvii. lxv. lxvii.

Pliny, Natural History, 114, 117, 118, 129, 132, 144.

Pozzo, author of The Jesuit's Perspective, 122, 137.

Raspe, on Painting in Oil, li. lii.

Requenos, Saggi sul Ristabilimento, &c., lxii. 138.

Rosa, Trattato delle Porpor, 122, 123. Rosini, Storia della Pittura, xvii. xix. lxvi. lxvii. lxviii. lxix., 109, 111, 113, 114, 135, 136, 147, 150, 151, 155.

Taylor, W. B. Sarsfield, The Fine Arts in Britain, lxviii.

Theophilus, *Tractatus*, MS., li. 129, 147, 159, 161.

Tilesia, Anton. De Coloribus, 120.

Ure, Dictionary of Arts, &c., 120, 121, 124, 129, 130, 132, 133, 157.

Vasari, Vite, xxi. xxv. xxvii. xxxviii. xlvi.-xlviii. lx. lxiv., 109, 113, 121, 129, 134, 135, 137, 138, 140, 142, 146, 150, 151, 153, 158, 164.

Veneroni, Dictionary, 163.

Vitruvius, 136, 144.

Walpole, Anecdotes, &c., lii.

Wilson, Mr. A., Letter, 135.

Winkelman, 164.

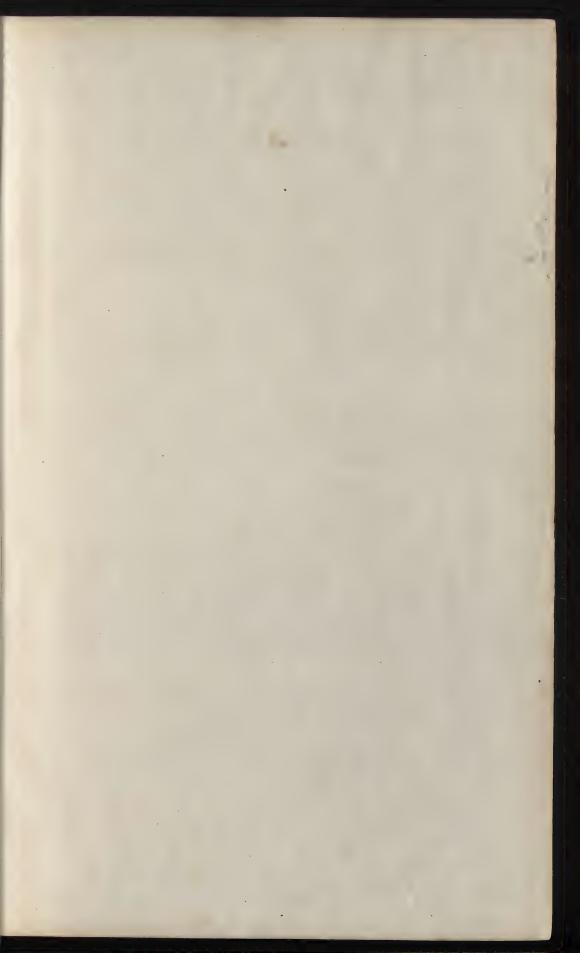
Zanetti, Pittura Veneziana, xvii. lxv.

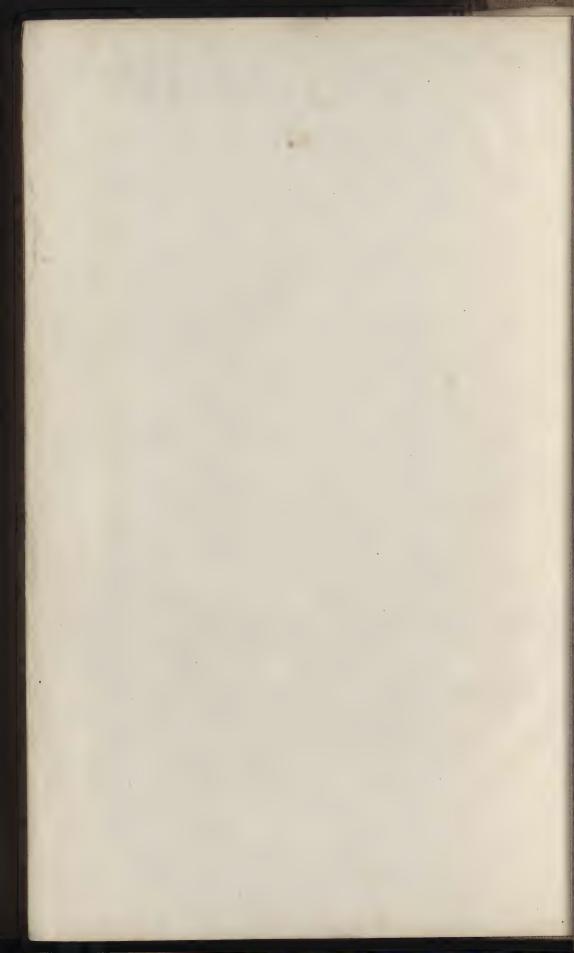




Virgin and Childs.

hy Raffaello 
Firmerly in the Possession of the Staffa Family.





### INTRODUCTORY PREFACE

BY

### THE TRANSLATOR.

THE Translator was induced to attempt making an English version of the work of Cennino in consequence of the estimation in which it appears to have been held by the Commissioners on the Fine Arts; and also in consequence of the high commendation of the work by the Italian editor, the learned Signor Tambroni (a member of several academies connected with the arts and sciences). He considers this work of Cennino "as a complete and precious memorial of the fine arts in Italy in the fourteenth century;" and that "of all the modes of painting used by the masters of these times, and of those who succeeded them, Cennino has composed the most complete treatise that has ever been written." He calls it "a precious and unique treatise;" and says, "I am firmly of opinion that the publication of this work will prove of inestimable advantage to present and future painters, especially as to the mode of painting in fresco; this kind of painting being almost, to our shame be it spoken, forgotten and lost." The translation of the work is also recommended in a letter which appeared in the Art-Union (October 1841), suggesting the expediency of procuring translations of several works on painting, in order to obtain practical information on the subject generally; and in particular, to discover, if possible, the whole process observed by the painters of the fourteenth and fifteenth centuries in painting those pictures, the colouring and execution of which excite our surprise and admiration even after a lapse of four centuries, and which have survived the trials of exposure to the elements, and injuries sustained from injudicious attempts to clean and restore them. As the work is strictly practical, and, with one exception, entirely free from the metaphysical disquisitions with which the early Italian works on painting so much abound; and as the book itself is rather a curious specimen, even in its English dress, of the style and manners of the time in which it was written, it has been thought advisable to publish the whole of it. Some extracts from the work have appeared in the Report of the Commissioners on the Fine Arts; but the Translator believes the entire treatise is but little known in England—certainly not to the extent it deserves.

The Italian editor has commented so largely on the work in his very interesting Preface, that but little remains for the Translator to point out for the observation of the reader.

A few points, however, not remarked upon in the notes, suggest themselves. The first is, the religious feeling which pervades the book, and which, at a cursory glance, and to a Protestant reader, almost assumes the appearance of idolatry. But this impression soon disappears, when we consider that to this feeling of devotion we are principally indebted for the preservation of the arts during the dark ages, and their subsequent revival. This preservation and revival we owe to the monks and religious communities of those times; who, at once the legislators of states (see Cicognara, Storia di Scultura, vol. i.), and directors of the spiritual and temporal concerns of man, kept his mind in the trammels of ignorance and

superstition, while they addressed themselves to his imagination, and worked upon it by the pageants and pictures which they presented to his senses, and through the medium of painting and sculpture made known the remarkable events recorded in Scripture history. It was principally by this means that the great truths of the Gospel,—tinctured, it is true, with the prevailing errors of the age,—became known to the common people.

For some centuries painters were occupied solely in adorning the walls of churches, chapels, and convents; and their subjects were entirely limited to illustrations of Scripture stories, pictures of the Virgin and saints, and miracles. At length they began to introduce into their pictures portraits of themselves, and of their patrons and friends; and this circumstance has been the means of making us acquainted with the personal appearance of many great men of that period, as well as of the painters themselves. Cennino's invocations and addresses to the saints, &c., will therefore cease to astonish us. It will be observed, that he speaks of painting none but religious subjects and persons.

In the pictures of the period of which we are now speaking, we meet with none of the beautiful demi-tints and broken colours observable in pictures of a later period; every colour is distinct and forcible, and the figures appear as if inlaid upon the ground. There is no harmonising, or lowering, or reflecting of one colour upon another; no optical arrangement or balancing of the colours, and a glimmering only of the light of perspective and chiaro-scuro. The pictures can scarcely be said to consist of a whole, but of various parts; and we find, accordingly, that they can be, and have been, cut down into smaller pictures without suffering material injury. We are told by Lanzi that a sort of manufacture

of paintings was carried on in Italy, in which one picture was cut and divided into several; but that no one ever succeeded in dividing pictures of the Venetian school, the various parts of which were so harmonised together that they could not be separated without destroying the effect.

It is to be observed that Cennino does not once allude to the theory of the art, or give rules for composition; but this does not diminish the value of his practical instructions, since mechanical dexterity is indispensable to the artist; and the works of the most accomplished theoretical painter would be looked at with contempt, if he did not possess the requisite facility of hand and skill in expressing his conceptions. A practical treatise on the art must be considered as the steps to the temple of painting of which Paolo Lomazzo speaks; every step of which we must climb, if we expect to obtain admission to, and distinction in, the temple to which they lead.

Yet, deficient as the art then was in theory, the painters of the school of Giotto possessed a manual dexterity, and a certainty of producing a good and durable effect, which arose from a knowledge derived from the tradition of preceding artists, and confirmed by experience, of the nature and properties of their colours and materials, to which the modern discoveries in chemistry have been able to make few additions.

It is evident from the work of Cennino, even were other proof wanting, that the colouring of these old pictures was extremely vivid and bright, and of a light tone. The darkest shades are produced by glazings of the pure colour alone, and the lighter gradations by the same colour made lighter with white.

One cause of the purity and beauty of the colours in ancient paintings, is the care with which the grounds were prepared. When these were not of gold, they were inva-

riably white; and we find from the work before us, that no pains were spared to preserve them pure, clean, and bright; for on this the success of the painting appeared in a remarkable degree to depend. "All they," says De Piles, the commentator on Du Fresnoy's Art of Painting (Dryden's translation), "who have coloured well, have had another maxim to maintain their colours fresh and flourishing, which was, to make use of white grounds, upon which they painted, and oftentimes at the first stroke, without retouching any thing, and without employing new colours. Rubens always used this way; and I have seen pictures from the hand of that great person, painted up at once, which were of a wonderful vivacity. The reason why they made use of those kinds of grounds is, because white not only preserves a brightness under the transparency of colours, which hinders the air from altering the whiteness of the ground, but also repairs the injuries which they receive from the air, so that the ground and the colours assist and preserve each other. It is for this reason that glazed colours have a vivacity which can never be imitated by the most lively and most brilliant colours; because, according to the common way, the different tints are simply laid on each in its place, one after another. So true it is that white with other strong colours, with which we paint at once what we intend to glaze, gives life, spirit, and lustre to the work. The ancients most certainly found that white grounds were much the best; for although they were conscious of the injury which their eyes received from that colour, yet they did not forbear the use of it; as Galen testifies in his tenth book Of the Use of the Parts. 'Painters,' says he, 'when they work upon white grounds, place before them dark colours, and others mixed with blue and green, to refresh their eyes; because white is a glaring colour.

which wearies and pains the sight more than any other." To this recommendation of white grounds for painting, we must add the precept of Leonardo da Vinci, cap. 100; "Sempre a quelle colore che vuoi che habino bellezza, prepararai prima il campo candidissimo, e questo dico de' colori che sono transparenti, perche a quelli che non sono transparenti, non giova campo chiaro:" and the example of Paul Veronese, Correggio, Rubens, and many of the great masters of the Italian, Flemish, and Dutch schools. The advantages of gold grounds, to which Cennino gives the preference, are stated by the Translator in a note.

Another point worthy of our attention is, the long and perfect grinding of the colours, and their preservation in the state of powder in bottles under water. This must have been attended with the double advantage of shewing the tone of the colours when wet, and also of preserving them from dust. We must also remark the extreme accuracy with which the tints are made and proportioned; and as the quantities of each may be measured, it is possible to produce, from the descriptions of Cennino, an exact imitation of the shades of colour described by him, as well for complexions as draperies.

It is to be observed also, that Cennino gives particular directions not to torture the colours with the pencil, but to paint them in the proper places at once; a practice to which, says Lanzi, Titian and the Venetian school were indebted for one of their chief excellences, and which was strictly observed by Rubens, and advocated by Du Fresnoy and De Piles.

On a careful examination of the colours used by Cennino, we shall find that, in addition to the causes above mentioned, the permanence of the colours in ancient pictures may be attributed to the knowledge possessed by the painters of the properties of the pigments they employed, and also to

the few colours used by the best painters, and all who were desirous of securing the durability of their pictures.

Cennino enumerates twenty-four pigments in the whole; but those which he considers his best pigments are but twelve in number, namely, the carbonaceous blacks, sinopia and cinabrese (which were merely two shades of the same colour), ochre and giallorino (Naples yellow), verde terra and verde azzurro (cobalt green), azzurro della magna (cobalt blue), and ultramarine blue, biacca (white lead), and bianco sangiovanni, and amatito; the last two being only used in fresco. On comparing these pigments with the tables of colours in Mr. Field's Chromatography, it will be observed that all except amatito (which is not known as a modern pigment), giallorino, and azzurro della magna, will be found in table iv., that is, among those pigments not affected by light, oxygen, pure air, or the opposite influences of shade, sulphuretted hydrogen, damp and impure air, the action of lead and of iron. Giallorino is, it seems, liable to change when brought into contact with sulphuretted hydrogen or with iron. Cennino also differs from Mr. Field in regard to the permanence of vermilion, which was found to lose its colour under certain circumstances.

Of the other pigments mentioned by our author, the lac lake, as observed by Mr. Field, is affected by lead; the kermes lake by light and sulphuretted hydrogen; while minium, dragon's blood, yellow and red orpiment, and verderame (verdigris), are affected by light, oxygen, sulphuretted hydrogen, and lead; and orpiment and verdigris by iron also. Of the remaining colours, zafferano, which was a vegetable yellow, and arzica are no longer in use. The caution given by Cennino to preserve all the colours generally from the contact of iron is noticed in the notes to the work. There is no brown pigment among the colours mentioned by Cennino, although

the moderns possess at least fifteen pigments of this colour. Of the multitude of pigments which the discoveries of chemistry have added to the palette of the painter, the madders and some browns only can be considered as real acquisitions, and pigments upon the durability of which artists may securely depend, and hazard their fame as colourists. The yolk of egg tempera might be used with all the most valuable pigments; but orpiment, indigo, zafferano, and verdigris, required to be mixed and diluted with glue only. Bianco sangiovanni, a paint used only in fresco, was diluted with water alone.

In chap. 72, Cennino gives a list of colours that were used in fresco-painting, namely, verde terra, bianco sangiovanni, giallorino, ochre, cinabrese, sinopia, amatito, and black. The list, it will be observed, contains no blue; but in chap. 75, we find that indigo with bianco was sometimes used for the first colouring of blue draperies in fresco, and was afterwards glazed in secco with ultramarine; and in chap. 83, that the dead-colouring of a blue mantle for the Virgin consisted of sinopia and black, and that it was glazed in secco with blue. The greens also in fresco must have been far from brilliant, since verde terra is the only natural green pigment used; and the brightest that could be formed artificially would arise from the mixture of black with ochre, giallorino, or verde terra. This dull colour of the greens accords with the observation of Sir H. Davy, quoted in the following paragraph:—

"Another cause of the preservation of these ancient pictures is to be found in the few colours used in painting. The earlier Grecian masters used but four colours, namely, Attic ochre for yellow, sinopis (the sinopia of Cennino) for red, the earth of Melos for white, and black." "It is known," says Lanzi (vol. iii. p. 70), "that Titian and Giorgione used but

few colours, and these they did not seek for or procure from other places, but they were such as were sold by all the shops in Venice." Boschini relates an observation of Titian, that whoever would be a painter should be well acquainted with three colours, and have perfect command over them, namely, white, red, and black. "The azure, the red and yellow ochres, and the blacks, are the colours which seem not to have changed at all in the ancient fresco-paintings. The vermilion is darker than recently made Dutch cinnabar, and the red lead is inferior in tint to that sold in shops. in general are dull. Massicot and orpiment are probably among the least durable of ancient colours. If red and yellow ochres, blacks and whites, were the colours most employed by Protogenes and Apelles, so are they likewise the colours most employed by Raffaello and Titian in their best style. The St. John and Venus in the tribune of the gallery at Florence offer striking examples of pictures, in which all the deeper tints are evidently produced by red and yellow ochres and carbonaceous substances." - Davy on the Colours used in Painting by the Ancients,-Phil. Trans. 1815. Of this description (with the exception of amatito) were the colours used in fresco-painting by the school of Giotto, and recommended by Cennino.

The propriety of using different vehicles on the same picture has been lately much discussed, and the general opinion appears to be unfavourable to it. Under these circumstances the practical directions of Cennino will be read with much interest. In chap. 35 he informs us that some colours must be used with one vehicle, and some with another; and on referring to the different chapters in which he treats of the colours individually, we find that "some will bear any tempera (vehicle or medium), some can be used with glue

only, and some with yolk of egg only;" while in chaps. 142 and 143, we find that pictures were sometimes painted on a gold ground in distemper (which Count Cicognara thought impracticable, Storia di Scultura, vol. iii.), and the glazings were done with colours ground in oil. The note to chap. 124 contains a description of an ancient picture still in preservation, painted in this manner; and still more curious on account of the gem-like ornaments in relief which are affixed to it, and which are doubtless the precious stones alluded to by Cennino in this chapter.

The vehicles used with white lead are particularly worthy Cennino says (chap. 59), "it will bear any tempera;" and we find accordingly, in the course of the work, that it was used with water, with glue, with yolk of egg, and with oil. He says that it is the only white pigment that can be used on pictures; therefore, as the whites are generally very well preserved in old pictures, we require no further proof of the durability of this pigment when used with other vehicles besides oil. One cause, perhaps, of this durability may be found in a practice mentioned in chap. 62, of shading white draperies with ultramarine, which we know has the property of preserving colours upon which it is used. We have a good example of this in the manner in which Rubens coloured flesh, which in his pictures is always fresh, and the colours well preserved. "He placed white on the lights, next to that yellow, then light red, making the tint darker as he went into the shades, and painting the carnations brighter than nature. He then passed over the whole with a cool grey (ultramarine and white), until he had softened and mellowed the whole." In this he imitated nature; for if we break or remove the skin, we find the flesh red and high-coloured. It is this skin which gives the semi-transparency observed in flesh, and which Rubens has happily imitated in his cool grey tint, and the flesh tints, in many of his pictures, which, after standing the test of 200 years, are now as bright and transparent as when first painted.

The use made by the early Italian artists of lyes (lisciva) is deserving of our notice and consideration. Cennino does not inform us how this lye was prepared; but it has been ascertained that lye produced from pouring water on woodashes, from solutions of borax, and also of soda in water, were then used. We find from Cennino's book that ultramarine (of which soda is a constituent part) was prepared with it; that it was also used in preparing azzurro della magna (an ore of cobalt) and zafferano. It has likewise been ascertained that soda has a preserving influence on red, yellow, and black pigments; and the result of experiments on these colours has been so satisfactory, that a certain quantity of soda,—or, to speak more correctly, of soap, which is a compound of soda with fat or oil (but not drying oil),—is now used in preparing pigments for painting sails for the British navy. It is also used in the manufacture of printing-ink; and we have now Cennino's authority for using it with blue pigments. Humphrey Davy informs us, that the Vestorian or Egyptian azure, the excellence of which is proved by its duration of 1700 years, may be easily imitated by carbonate of soda, opaque flint, and copper filings. The Translator has made many experiments on the effects of the alkalis and neutral salts when mixed with colours, and has every reason to be satisfied with the addition of soda, when properly used.

The question as to the propriety of early or late varnishing has been recently much discussed: it will be seen that in chapter 155 Cennino strongly recommends delaying this as long as possible, and he gives his reasons for so doing.

It is to be observed, that he directs the pictures to be previously warmed in the sun; and that the gold, where visible, was not to be varnished. The practice of varnishing parts of a picture, and not the whole, seems a relic of the old Egyptian manner of painting, which passed from Egypt into Greece, and from Greece into Italy; for we find, within the cases of mummies, coloured drawings on grounds of the purest white. The coloured parts only are varnished with a brilliant and transparent varnish, but the white is left unvarnished.

The practice of painting in encaustic seems to have been discontinued previous to the time of Giotto, since Cennino does not mention wax, except in two places, neither of which has any reference to painting; and this agrees with the experiments recorded by Lanzi, in which no wax was found in pictures painted after the year 1360. Nor does Cennino mention essential oils, which, we therefore conclude, were not used in painting at that period.

Painting in distemper in this country appears to have been chiefly confined to scene-painting; but it is still practised in Italy. The great objection to it was, that pictures painted in this manner could not be washed; but as Cennino informs us that they could be varnished, this can no longer be considered an objection. Of the durability of this kind of painting there can be no doubt; since Cicognara mentions some old paintings in distemper at Venice, by Maestro Paolo, who was living in 1346; and by the Vivarini da Murano, dated 1445, which are still in excellent preservation.

It has been said that Giotto was the pupil of Cimabue (a Florentine, who died in 1300), to whom the revival of painting in Italy has usually been attributed. It has also been said that he was taught by the Greeks; but later researches have shewn that Giunta, of Pisa, who painted in 1202, is the

most ancient Italian painter whose name is inscribed on pictures. He was a disciple of the Greeks (see Rosini, vol. i. p. 104; Lanzi, vol. i.). Although deficient in design and in drawing, and entirely ignorant of the theory of the art, these early painters were acquainted with some method of painting which preserved the durability of the colours of their pictures in a most extraordinary degree.

As the painters of the early Italian school acknowledge their manner of painting to have been derived from the Greeks, it may not be uninteresting to see what light has been thrown upon this subject by modern investigation.

Lanzi (vol. i.) relates that many old pictures were analysed by the celebrated chemist Signor Pietro Bianchi, and they appeared to have been painted in oil; and it was found that the oldest pictures, which were usually the most brilliant, gave indications of wax, a material used in encaustic painting, and not forgotten by the Greeks, who instructed Giunta and his contemporaries. It seemed to have been used as a varnish, with which the painting was glazed, and which gave it a consistency that resisted moisture. It is observable that the quantity of wax used in the fourteenth century continually lessens, until in 1360 it fell into disuse, and was succeeded by distemper-painting, which did not shine. In these experiments no oil was found, except a few drops of essential oil, with which the learned professor conjectured the wax was dissolved to facilitate its application in painting. Cicognara, Piacenza, Zanetti, and all who have studied the subject, agree that it is impossible to decide whether the pictures were painted with colours mixed with oils and resinous varnishes, or whether these were applied after the picture was finished. "Much," says Lanzi (vol. i.), "would be benefit the art who could inform us with what gums, with what mix-

tures, these Greeks painted. They certainly inherited some valuable methods, which had descended to them by traditions, and which, though altered in part, were certainly derived from their ancestors. Even since the discovery of oil-painting, we feel a degree of admiration at the colouring of their pictures. In the Museo Medico is a Madonna with this Latin inscription, 'Andreas Rico de Candita pinxit.' The forms are common, the folds of the drapery ungraceful, the composition unskilful; but the colours are so fresh, so vivid, so brilliant, as to surpass all modern pictures; and the texture of the picture is so hard and compact that it does not yield to iron, but rather chips off in minute sparkling scales. The frescoes of the ancient Greeks and of the oldest Italian artists are also very hard; and those of upper Italy are harder than those of lower Italy. Some pictures of Saints in St. Nicole di Trevigi surprise us by their durability. these, P. Federici (vol. i. p. 188) writes: 'I have been told by professors that the consistency of the tints seems to have been owing to some portion of wax used in those days; but I must confess that we have made but little progress in discovering these ancient methods of painting. When they shall have been discovered, they will be found very useful in restoring old pictures, and in preserving that solid, fused, and lucid colouring, which in various pictures of the Lombard and Venetian schools, and especially in those of Correggio, was so much esteemed.""

Of the paintings of Cimabue, who died in 1300, M. Bottari writes, that "they appear as if painted but a few years ago; and this preservation is chiefly to be attributed to the great quantity of ultramarine he employed, in which he shewed a liberality only felt by those who have a lofty idea and sincere love for the art. And these pictures must have appeared, to

the religious persons for whom they were painted, quite wonderful, not only on account of the superior design, but also from the splendour and vivacity of the colours." The Christ, which about this period (it is dated 1272) Cimabue painted in Perugia, and which, like that of the Santa Croce at Florence, is quite resplendent with azure (I repeat the expression of the Florentine prelate, M. Bottari), seems painted but yesterday.

Although we have not succeeded in ascertaining the Greek method of painting, we have no doubt respecting the manner in which the grounds were prepared; and we shall find that Cennino describes and recommends the process adopted by the Greeks. The materials also of which the grounds were made are considered evidence of the period when the pictures were painted. Rosini (vol. i. p. 122) makes the following observations on this subject:—

"The pictures of Giunta, and those painted at this period (1202), were executed on linen cloth, stretched on a panel, prepared with two or three coats of gesso (see the Christs in San Frediano, San Francesco, Santa Marta, &c.). This is a regular practice, and is noticed by Mariotti, Morena, and others." We may also add, by Cennino, in chap. 114.

"If, then, we find them prepared in a different manner, this should signify that they are either anterior or posterior to this time.

"But among the Crucifixions posterior to Giunta, we find that which is preserved in the church of San Matteo, illustrated by Professor Ciampi, which he believes (and I think correctly) to be an Italian, and not a Greek picture. The proof that it is later than Giunta is, that the feet of Christ are not fastened with two nails, but with one, a practice which began after Cimabue.

"Now this Crucifixion (continues Ciampi, Sagristia, &c.

p. 87), is not painted on wood, or on linen, but upon a large skin of parchment, carefully stretched upon wood." Directions for doing this will be found in chap. 17 of this work, which proves that the practice was then in use.

"If then the form of the feet indicate a period posterior to Giunta; and if the mode of painting be different from that which was usually followed (that is, on parchment, and not on linen), it is probable that the method did not precede, but that it followed the other.

"Hence we conclude that paintings upon parchment are, in all probability, posterior to the time of Giunta.

"Now, who would believe that the Crucifixion in the Campo Santo at Pisa, which is undoubtedly a Greek work, is also painted on parchment, stretched upon a plank? Yet it is even so. And this being the case, we attribute it with good reason to an artist posterior to Giunta.

"After a lapse of six centuries this picture is in a wonderful state of preservation. The Christ is inferior to that of Giunta; but in the different subjects which are on each side of the Crucifixion and above the head of the Redeemer, the Greek who executed it shews a desire to compete with and emulate the artist of Pisa.

"The existence, then, of this picture, which is visibly of Greek origin, although it bears a Latin inscription (of which we have many examples when the sacred effigies were intended to be sent into Italy; and we may here allude to the before-mentioned picture by Andreas Rico, of Candia), and the circumstance of its being executed on parchment, which indicates, as has been said, a later period, lead us to believe that the Greek school continued some years after Giunta, who must also have founded a school, as is evident from the monuments which remain of it.

"It has also been remarked of a picture anterior to the time of Giunta, that besides the gesso, which covered the linen cloth stretched upon the panel, it had been covered with gold-leaf previous to the painting.

"A Crucifixion, still preserved in the private chapel of the noble family of Rosso, in the convent of San Matteo, is painted on linen stretched on a panel, as is the case with the most ancient pictures; and according to the opinion of chemists, the varnish is mixed with oil."

The Translator abstains from entering into the controversy relative to the vehicle of Van Eyck, which seems inappropriate on the present occasion. Should the result of the experiments which have for some years occupied her leisure hours be ultimately successful, a future opportunity will be taken of discussing the subject. It may, however, be proper to observe, that Cennino does not mention the practice of mixing liquid varnish with colours (except in that remarkable chapter, 161, in which he speaks of the custom of painting the living face with oil-colours, or colours mixed with varnish, in order to make the complexion appear more brilliant); and to suggest to the artists who paint with the composition called megelp (mastic varnish and boiled oil), whether that can be a good vehicle which had been tried and rejected by the painters who flourished previous to, and during the age of, Van Eyck. In Vasari's Life of Antonello da Messina, he informs us, that the painters, when seeking for a vehicle, had, among other things, tried the experiment of mixing liquid varnish with their colours, and that the result had been unsatisfactory. It is probable that their varnish was composed of some kind of resin dissolved in linseed-oil; but that varnish, when dry, could have varied but little from the vehicle made by mixing boiled linseedoil with mastic dissolved in spirit of turpentine; for the latter being an essential oil, would evaporate as it dried, and leave the resin and linseed-oil on the picture. The addition of the litharge, on which the modern drying oil is boiled, and which occasions the gelatinising of the megelp, is known to have a deleterious effect on colours, by causing them to change. It is somewhat curious that the painters of the nineteenth century should have revived and practised, as a new invention, what those of the fourteenth century had tried and rejected; and more extraordinary still, that, unwarned by experience, they should continue to use it, in spite of the awful gashes and cracks that disfigure the pictures painted with this vehicle.

As the utility of a work so entirely practical as that of Cennino depends in a great measure on the fidelity of the translation, it has been the endeavour of the Translator to make the present version as literal as the idiom of the two languages will admit.

The learned Editor has remarked that the style of the original work is unpolished, that it abounds in provincialisms, and that it contains many new words and terms of art. Many of these have escaped his research, and are not to be found in any dictionary, as he informs us in several notes, which have been omitted in a translation where the original words are not retained. In such cases the Translator has endeavoured, by maturely considering the context, and by consulting other eminent works on the same subject, to express what is conceived to be the meaning of the Author; and though aware of many imperfections in the work, no care and attention has been spared to prevent any material misinterpretation of the text on any essential point; and the Translator relies on the indulgence of the liberal-minded to

excuse unimportant errors in the translation of a work more than 400 years old, which contains many words unknown to the learned Editor and countryman of the Author, and many forms of expression, which, though formerly in use, are now obsolete.

The Translator has spared no pains to illustrate the work by notes and quotations from the best writers on the art, which, it is hoped, will be found of practical utility.

Many of the Italian terms of art have been retained, the Translator considering that by those conversant with art the original words will be better understood. The meaning of such expressions, where not added to the text, will be found in the *Notes* or in the *Index*.

There is much of the Introduction, by Tambroni, which does not apply to the practical part of the art of painting; but as it shews the importance which was attached to every thing connected with the fine arts in Italy, and, consequently, the high estimation in which they were held in that country, and as the reflections of this learned and accomplished Editor are so excellent in themselves, it has been thought desirable to retain the whole of the Introduction in this translation, considering it, independent of its intrinsic merit, a literary curiosity, and otherwise historically interesting.

The Notes by the Italian Editor are distinguished by the name of Tambroni, and those by the Translator by the word Translator, at the end of each note.

The *Plates* which accompany the work were drawn on stone by the Translator, and were selected chiefly from Rosini's new work, *Storia della Pittura*.



## PREFACE

BY THE

## CAVALIERE GIUSEPPE TAMBRONI.(1)

Giorgio Vasari is the first author who has mentioned Cennino, son of Andrea Cennini da Colle di Valdelsa, a painter, who was the disciple of Agnolo, son of Taddeo Gaddi, the scholar of Giotto. In the life of Agnolo Gaddi the following

passage occurs:

"Cennini, son of Drea Cennini, of Colle di Valdelsa, who studied painting under the same Agnolo, being very fond of the art, wrote with his own hand, in a book, directions for painting in fresco and in distemper, with glue and with gum, also how to paint in miniature, and various ways of laying on gold; which book is in the hands of Giuliano, a goldsmith of Siena, an excellent master and friend to the arts. And in the beginning of his book, he treats of the nature of colours, mineral as well as those prepared from earths, as he was taught by Agnolo his master, being desirous (although perhaps he did not succeed in learning to paint perfectly) to know the different kinds of colours, vehicles (temperas), (2) glues, and plaster (qesso); also what colours to avoid, as being injurious when mixed with others; and much information besides, of which it is not necessary to speak, all these things being now well understood, although in his time they were considered great secrets, and were known only to a few persons.

"We must not omit to state, that he does not mention (and perhaps they were not in use) certain colours prepared from earths, such as dark red earth (terre rosse scure), cinabrese, and certain vitreous greens. Umber, which is an earth, has

also been found since his time; (3) also yellow lake (giallo santo), smalts, used both in oil and fresco, and some vitreous yellows and greens, which were not known to the painters of that age. He also treats of mosaic painting, (4) of grinding colours in oil to make grounds of red, blue, green, &c., and mordants for laying on gold, but not for painting figures. Besides the works that he painted in Florence, in conjunction with his master, he painted with his own hand, under the loggia of the Hospital of Bonifacio Lupi, a picture of the Virgin with certain saints, so well coloured that it is at this day in good preservation. (5) This Cennino, in the first chapter of his book, makes use of these words: 'Cennino di Drea Cennino,' &c. [here Vasari quotes from the beginning of the work to the end of the first paragraph; he then adds:]

"These are Cennino's own words; to which (as those who translate books from the Greek into Latin, for the use of those who do not understand Greek, confer a great benefit on the arts) we add what was accomplished by Giotto, who advanced the art of painting, from a manner not understood or known to any one (unless perhaps for its barbarism), to an easy and most pleasant manner, known and approved of by persons of judgment and information."

This is all that is said about this painter and writer; (6) and we now despair of finding any notices of his life and works; for whoever has since written concerning him, has copied from Vasari; as Baldinucci confesses, in his short note entitled the *Life of Cennino*.

I am firmly of opinion, as I shall hereafter shew, that Vasari never read the work of this artist; and although he transcribed a few lines of the first chapter, he either did not set any value on the remainder, or read so little of it that he did not understand it. Nor shall we hesitate to believe, that his knowledge of it was limited to what he was told by the goldsmith Giuliano; whence the serious mistakes he made, and the many errors into which he fell, especially concerning the mode of colouring in oil. (7) But we shall speak hereafter on this subject.

And I believe that the reason why the work of Cennino is now published for the first time is to be attributed to the small value set on it by this same Vasari, who here says, "and in short, many other recipes of which it is not necessary to speak, these things being now well known, although they were considered great secrets in his days, and were known but to few persons."

Those two learned men, Bandini and Bottari, however, thought differently. For the first, in his catalogue of Italian manuscripts of the Library Mediceo-Laurenziana, shewed a great desire that the manuscript of Cennino should be thoroughly examined: "quum male," said he, (8) "compactus sit codex ac multa secreta contineat non contemnenda, dignus est qui ab aliquo bonarum artium cultore diligenti examine perpendatur." And the second, in his notes to Vasari's *Lives of the Painters*, where, in that of Agnolo Gaddi, speaking of Cennino, he says, "it would be very useful to publish this book on the arts, since we have so few writers in the Tuscan language on the arts in comparison with the Greeks." (9)

These remarks of Bottari long since awakened in my mind a great desire to become acquainted with this work, in which I hoped to find some information relative to the mode of colouring practised in that age, and also relative to the nature of the colours, which we see still existing in great brilliancy, to the extreme regret of the painters of the present day, who have lost all remembrance of the vehicles and of the mode of using them.

And it was a great source of wonder to me to see, that, among so many writers, who either combated or defended the assertion of Vasari, giving to John Van Eyck (Giovanni da Bruggia) the honour of having first invented the art of painting in oil, after having said that Cennino had shewn in his book how to grind colours in oil, it never entered the mind of any of them to read attentively the manuscript which had caused so many disputes. Nor can we help believing that Borghini knew the work of Cennino, although he does not mention either him or John Van Eyck, and likewise omits

any notice of Agnolo Gaddi. This silence, I am led to believe, was wilful; because, in reading his second book Del Riposo, I found in many passages a literal copy of the work of Cennino, principally where he speaks of drawing pictures with a silver stile, of bones for rubbing on pictures (inossare), of making crayons, of tinting paper, or making transparent paper, of glues, of painting in fresco and distemper, and also of colours; and among other things which induced me to suspect his artifice, was his mentioning paper made of cotton (carta bambagina), which was no longer used in his time. And where he speaks of cinabrese, he says that it was made of sinopia; but he does not tell the nature of the colour, nor does he place it in the number of dark reds. He also erred in calling porporino a perfect red colour, whereas it is the oro musivo, as I have remarked in the note to chap. 159 of the book of Cennino. Whoever reads both books attentively will see whether I am deceived.

Baldinucci, at the instigation of Antonio Maria Salvini, as he himself declares in the above-cited life of Cennino, seems to have investigated the manuscript with greater curiosity; for besides having repeated the part transcribed by Vasari, he added the title and the last rules of the work. He then touches slightly upon the question of painting in oil; and transcribes part of chap. 89, in order to shew that in Italy this art was derived from the Germans. He then discusses two other passages of the treatise, namely, those on the lapis amatito and acquerelle (water-colours), to which words he gives the preference over matita and acquarelli, which were in use both in his own time and since that period. But he either did not understand, or he concealed, what he had read, that he might not contradict Vasari; or he quoted these few passages on which he has remarked, to induce the belief that he had examined the whole manuscript.

Bandini alone, as appears from his Catalogue, gives proofs of having minutely examined this work; because, besides having diligently transcribed it from beginning to end, he says, as we have before noticed, "ac multa secreta contineat non contemnenda." These words are an incontestable proof that he had studied it more thoroughly than any other person.

The celebrated Abate Lanzi at length induced the Abate Moreni to consult the treatise of Cennino. But it appears that he did not examine it very minutely; for, except having copied the end of chap. 89, of which Baldinucci had written only part, Lanzi makes no other reference than the following passage: "In the subsequent chapters he says that this ought to be done by boiling the linseed-oil." And thence Lanzi (who was himself mistaken) drew the conclusion, that the mode described by Cennino could not have been that of John of Bruges, and was fit only for coarse works. This very learned author could not, then, have been perfectly acquainted with this book on the art.

Of the remaining writers who have had occasion to quote the book of Cennino, all have done so on the authority of the above-named authors, without having felt themselves stimulated by the just and laudable curiosity of examining the work itself.

I was mentioning this circumstance one day to that everincreasing light of Italian literature, Signor Angelo Mai, præfect of the Vatican Library, of whom it is difficult to decide whether his learning, his courtesy, or his love for the glory of our name, is most eminent; and I respectfully entreated him to search whether the precious treatise of Cennino might not perchance be found concealed among the immense treasures of the Vatican manuscripts. But a short time elapsed before he announced to me that he had discovered it among the Ottobonian manuscripts, numbered 2974.

I immediately began to read the most ancient written monument of the fine arts since their revival; (11) and finding that it contained many things highly useful, but now lost, I requested permission of Monsignore to publish it for the benefit of the world at large; and he, who is all politeness, graciously acceded to my request. For this he deserves the thanks of all Italy, and of all artists, as well as of myself, who will study carefully to make known the name and work of

Cennino, and rescue in some measure this worthy Italian from the ungrateful oblivion in which he has been left for about four centuries.

I shall, in the first place, make such remarks on this manuscript, as that all who feel the inclination may consult and examine it.

It is registered, as I have said, among the Ottobonian manuscripts, and numbered 2974; and from the coat of arms affixed to it, is known to have belonged formerly to Baron Stosch. It is on paper, and was recopied less than a century ago from some old manuscript, because it bears in front the date 1737. From the initial letters of the name of the amanuensis, P.A.W., it appears that he was not of Italian origin. In the first two pages, and in part of the third, are transcribed the notices which P. Orlandi and Giorgio Vasari left of Cen-The writing is that of the last century, very clear and But whether it was that the amanuensis was not very learned, or that he had but little knowledge of the things belonging to painting, or that the manuscript, from which the present is transcribed, was written in characters difficult to interpret, as manuscripts of the fifteenth century generally are, —it has occasioned much labour to bring it into a legible state. For this reason I determined to recopy it entirely with my own hand, to examine and study it diligently, endeavouring to supply, in the best way I possibly could, the ignorance or absolute negligence of the foreign transcriber. And but for this care my labour would have been in vain, because, as may be seen, the order and arrangement of the precepts are confused, and the orthography incorrect. In settling the reading, therefore, I found the works and advice of the Abate Girolamo Amati and Salvatore Betti, - names dear to the republic of letters and my intimate friends, - extremely useful. Nor shall I suppress that, from the notes both on the margin and the text, it is known that this copy was taken from another, which perhaps was examined with and corrected from the original manuscript. And yet the greatest difficulties are not removed; for either the difficulty of the original writing,

or the ignorance of the amanuensis, is perceptible. And because I wished to profit by the observations of others, I must add that it was the opinion of the before-mentioned Salvatore Betti, that we should consider as interpolations of the amanuensis the repetition of words or synonymes which are met with at every page; as, for example, miolo over bicchiere, sinopio over porfido, colla over tempera, &c.; (12) although I do not entirely agree with him on this point; for I think that, as Cennino wrote in the dialect of his native place, he wished to explain the provincialisms which escaped from his pen by words then in use in polite Florentine conversation; and I am the more inclined to this belief by remarking how many times he repeats, and how minute he is in his writing.

However this may be, with some study and diligence it is possible to render our text intelligible. I shall say, in fine, that it contains 142 folio pages; that the whole work is divided into one hundred and seventy-one chapters, and these into books as far as chap. 113, where the fifth book terminates, after which there are no more divisions; and I strongly suspect that the divisions into books, chapters, and rubrics of this manuscript, were not originally made by Cennino, but by the amanuensis. And my reason for this is, that some rubrics are begun in the third person, as in chap. 36: "come ti dimostra i colori naturali." And at chap. 116 these rubrics are found no longer; and I have thought proper to supply them, for the convenience of the studious, and to facilitate the understanding of the work. It is nevertheless true, that such omissions are met with in many ancient manuscripts; because the letters being either illuminated, or the titles written in red characters, the amanuenses omitted them, that they might afterwards add them at their leisure, or that others more expert in these arts might do them. And it might happen, that sometimes being prevented by various causes from doing this, the books remained imperfect.

But let these things which we now discuss be as they may, they are of little or no importance to the arts, and no

defect to the work, which makes us intimately acquainted with the state of the art of painting in the days of Cennino, the nature of the colours, and the manner in which these old masters executed those works which astonish us, considering the age in which they were painted. And we desire anxiously to know how they laid gold on pictures and books, what glues they used, what vehicles and mordants, since they have resisted the accidents of many centuries, and the gold and colours preserve still such great freshness on pictures and on walls.

I have not yet been able to ascertain that there are more than three copies of this work. The first is in the Biblioteca Laurenziana at Florence, mentioned by Baldinucci, Bandini, and Bottari, banco lxxviii. n. 24. The second is in the mansion of the Beltramini of Colle, as we collect from a note to the index of the works of Baldinucci (Florentine edition), under the word Cennino, unless this should have passed into the B. Laurenziana, of which Bandini, in his Catalogue, does not inform us; and from the preceding note it appears that this last is the autograph that Vasari says he found in the hands of Giuliano the goldsmith of Siena. The third is in fact the Ottobonian manuscript.

This book of Cennino's is of use not only to the arts, but it is also useful to the language. For although the style be unstudied, and without any ornaments, and is such as a writer ignorant of the belles lettres, and even of the language, might use, and is besides full of common expressions and provincialisms, it is nevertheless good upon the whole, and contains many new and excellent words, especially in the arts, as Signor Bottari has wisely remarked. I shall give an index of these words at the end of the book, for the use of the compilers of dictionaries, and also that philologists may employ them in elucidating some of those questions which relate to the formation and origin of the language. (13)

Nor will there be, in my opinion, any one who, on account of the language, can deny Cennino the authority of a writer of the fourteenth century. For although he wrote his book in the year 1437, it is certain that he was born soon after 1350. It is true that Vasari does not name the year of his nativity; but it seems to me there is no difficulty in forming an approximation to it in the following manner.

Cennino finished writing his book on the arts the 31st day of July 1437. In this he says, that he was for twelve years the disciple of Agnolo Gaddi, who died in 1387. posing that he was with his master at the moment of his death, he must then have been in his service in the year 1375; the period at which he began to reside with Agnolo, between the twelfth and eighteen years of his age, will determine the period of his birth about 1360. And if we allow some years to elapse between the termination of the pupilage of Cennino and the death of his master Agnolo, we shall soon arrive at 1350. Consequently he lived at least forty years in that golden age of our language. Men do not, at such an advanced age, change the mode of speaking which they have learned in their infancy, and confirmed in their vouth and manhood. And we know it by experience, because we hear from our old men expressions which were used in the days of their youth, and which are now obsolete.

For this cause, then, we esteem it a labour of general utility to publish the book of Cennino.

As in passing through life we learn many new things, so do we forget many old things, and gradually the remembrance of them is lost from among men. Therefore those persons do not reason well who do not study to perpetuate useful things by writing; because in such case posterity will hereafter seek in vain for their origin, perfection, and use. This would have been the case with the method of painting in the four-teenth century, which followed soon after the revival of the fine arts, if Cennino had not preserved a complete and precious memorial of it in his book.

It was, then, very fortunate that our author conceived the idea of writing a work on his art, which he had been taught, and which had descended directly to him from Giotto, through Taddeo Gaddi, and Agnolo his son; and this he did with so

much love, so much order, and with such minute particularity. that our astonishment is excited. For, as is apparent to every one, the most ignorant person in the art of painting could by himself, assisted only by this book (except as to the practical part of the art), become expert and familiar with all the modes of painting used by the masters of those times, of whose method, and that of those who succeeded them, Cennino has composed the most complete treatise that has ever been written. For, not content with teaching minutely all those things which ought to be acquired, he also adds those which should be avoided; and he discourses con amore, not only of causes, but also of their effects. Nor is it enough for him to have demonstrated how things are to be done, but he condescends to specify how the means of doing them are to be prepared. He prescribes the quality of the materials, the dimensions of the instruments; and he advises the reader at every step as to what, according to his doctrine, he should prefer. But not tenacious of his own precepts, he quotes also the practice of the old masters, although he did not consider it good, nor did he adopt it himself.

Among all those who have written treatises on the art of painting, Gio. Battista Armenini of Faenza (who was a painter, and who flourished about the middle of the sixteenth century), was the only one who approached Cennino in giving precepts concerning the practical parts of painting. Vasari touches briefly on these subjects; and all the others, endeavouring to subtilise and mystify, enter into disputes concerning ideas, and lose sight of the principal objects. Therefore we may say, that in proportion to their endeavours to speak of sublime and fantastic subjects, did the art, which owed its improvement more to practice than to theory, become lost. For we know that Raffaello and many others of the great masters drank at no other fountain than that of nature and practice; and that so many treatises of the beautiful and the ideal have not been able to produce one single great man.

We return from our digression, by observing of Armenini, that he certainly did not know Cennino's book, because he

says, in the preface to his work, "the art of painting has not yet had any one who has collected instructions and precepts for the utility of mankind, or published them in a single volume;" and elsewhere, "this I do the more willingly, because no one that I am aware of, previously to myself, has distinctly and fully made these things known in writing." And to speak the truth, he deserves much praise for his work, although it may not be so easy, and clear, and full of precepts as the book of our author. I cannot, however, pardon him two things. The first is, for having ungratefully and harshly spoken of those old and venerable masters who flourished between Giotto and Pietro Perugino; and for having entangled himself in the metaphysics of the arts, and having clothed a few ideas with a great many words.

We shall not stay to say more respecting the treatise of Francesco Bisagni, than that his own work chiefly consisted of a compendium of that of Armenini. And I must here observe, that I intend to speak of Italian writers only.

In reading the book of Cennino, we acknowledge the truth of what Vasari asserted, namely, that the things comprised in it were considered great secrets in those ancient times; for in every page we find proofs of the great jealousy with which the masters concealed their knowledge, which they communicated only step by step to their disciples. And this mode of instruction, by placing students in a state of servitude, as is observed in the second chapter, was well adapted to youths desirous of learning. The word *creato* has no other origin than that given by Vasari and other writers to the disciples of the old masters, and which, being derived from the Spanish, was adopted into the Italian language as the synonyme of servant. Cennino repeats in two places that Taddeo Gaddi was the disciple of Giotto for twenty-four years, and that he himself was that of Agnolo for twelve years. In chap. 104, he afterwards discourses on the time in which he thought the art might be acquired, and he determines on thirteen years; namely, one whole year to be devoted to drawing; then six years to learning the mechanical and more common parts of the art; and another six years

to practising colouring, adorning with mordants, making draperies of gold, and practising painting on walls. And for this reason I think that the discipline of the art was taught to the disciples with great caution and by gradual steps, the masters being always the depositories of the old traditions of practice. Hence the laboratory of a painter must have been of difficult access to all those who were not initiated in the school; and to this they were led, not only by the works of design and of colouring, but they were also prepared for them by the preparation of those things which at present are subservient to painting, and are now supplied by various arts.

For this cause we should not be surprised to observe, that our author employs the two chapters, 12 and 14, in teaching how to efface, with a piece of crumb of bread, the marks made by the leaden stile, and how to make a pen; because it is necessary to return in thought to that period of the infancy of painting, and to remember that all the parts of the art were concealed with the greatest care.

In chap. 60, for example, Cennino says, "Cinnabar is a colour which is made by alchemy, prepared in an alembic, of which, &c. . . because if you choose to fatigue yourself, you will find plenty of recipes, and especially among the monks." And in chap. 44, in speaking of *lac*, he says, "which is an artificial colour. There are many recipes for making it." In chap. 62, where he discourses on the mode of preparing ultramarine, he recommends keeping the secret, saying, "And keep it to yourself, for it is a great acquirement to know how to make it well."

But I am also led to believe that the same Cennino was very ignorant of many things relating to the nature and origin of the colours; and for this reason, that he sometimes evaded the question, and more frequently recommended his readers to purchase the article ready made. In chap. 46, treating of the colour giallorino, he gives evident proof that he did not know how it was made, and that he only judged of it by the weight. "And I believe," says he, "that this colour is a true stone, produced in volcanic districts; for this reason I

say that it is an artificial colour, but not prepared by alchemy." Nor can we wonder at his ignorance respecting many colours; because the Venetians, who alone navigated the eastern seas, had the right to distribute over Europe the merchandise of Asia; and no inconsiderable portion of this consisted of colours, which were afterwards made in the laboratories of Venice, where even at that early period some colours were prepared, and from whence the apothecaries throughout Italy (of whom the painters purchased their pigments) were supplied. And in fact, in chap. 10, Cennino mentions the colour called pezzuole, which was then, and now is, used by miniature-painters, and which is at present called pezzette di Levante; it is of a red colour like carmine, and is used by women to increase the beauty of their faces.

In order to prove that Vasari had never read the whole of Cennino's book, as I have before asserted, I shall allege some reasons, which I believe cannot be controverted. He says, in the first place, "he (Cennino) does not mention (and perhaps they were not in use) certain colours prepared from earths. such as terre rosse scure, cinabrese," &c. Now, chapters 38 and 39 are devoted to sinopia, or terre rosse scure, and cina-In the second place, Vasari continues, "he also treats of mosaic painting;" and Cennino has not a single word on this manner of painting. In the third place, the same Vasari asserts that Cennino treats of grinding colours in oil to make red, blue, green, and other kinds of grounds (campi), and of mordants for laying on gold, but not for figures; while six entire chapters, that is, from 89 to 94, are all employed in describing the mode of preparing good oil for mordants, not only boiled on the fire, but baked in the sun, for painting on walls, on pictures, on iron, on stone, and on glass; and also of grinding colours with the same oil to paint flesh, draperies, mountains, trees, and whatever you please. Nor is that sufficient; for although Cennino has written at the end of the book nine whole chapters on the manner of casting, in plaster, heads and entire figures from the life, coins, and seals, and of making casts in metal, Vasari does not make the least mention

of these subjects. Whence we are constrained to believe, that he merely glanced lightly over the titles to the chapters of part of the manuscript; and that thinking it useless, he did not care to examine and investigate the whole work. For this reason it cannot be supposed that this noble-minded man, so zealous for the honour of his country, and whose every effort had been directed to make it pre-eminent, would withhold from one of his fellow-countrymen the just fame which he deserved by so valuable a work. Nor do I here intend to reprove him, or to lessen his glory. I shall say only, that he committed a great error in not having examined the work of this old master; for then perhaps he would not so easily have given the credit of those things to strangers which certainly were known in his own beautiful Tuscany, and in all Italy, as I shall hereafter study to prove.

We must now speak of the work. I think it would be superfluous to enter too minutely into it, since it would deprive the reader of the pleasure of studying it himself; besides, it is not difficult to understand, but, on the contrary, is quite simple, plain, and clear. Where I have thought it right to illustrate and make the text more clear by annotations, I have endeavoured to be moderate and brief; and I have sought to lead the readers, as much as I possibly could, to the customs, the practice of the arts, and to the forms of expression of that period. Nor do I consider that I have commented upon every point: many new lights may yet be thrown upon

this precious and unique treatise on painting.

In the introduction to his book, Cennino shews that he was but little acquainted with literature; for, desirous of imitating the writers of his times, who began all their works with the creation of the world, he entangles himself in a thorny labyrinth, from which he issues with weariness, and in a weak and obscure manner; nevertheless, he deserves much credit for the reverence with which he speaks of Giotto, of Taddeo, and of Agnolo Gaddi, whose praises he repeats in many places, —in chap. 4, for example, saying, "and this is the precept of the great masters, among whom," &c. And in chap. 67,

he says, "Giotto, the great master." And when an opportunity occurs of rendering homage to these ancients, he never defrauds them of the gratitude he owes them. I think I ought to present to the minds of modern students of the noble arts of design these facts, whence they may learn the great utility of those lessons of love, and fear, and obedience towards their masters, of which our author speaks in chap. 3.

The whole of the first part of the book, consisting of thirty-four chapters, is dedicated by Cennino to the first rudiments of design. After having enumerated all the parts into which the art of painting is divided, he proceeds to describe the manner of drawing pictures, of which he prescribes the dimensions. He then directs how to use bone-dust (inossare), and what stiles should be used. He gives the rules of light, of chiaro and scuro, and relievos. From pictures he proceeds to parchment and paper made of cotton (carta bambagina); the latter, at that time much used, was imported into Italy from the Levant previous to the paper made of rags, now in use, becoming common.

And the varnish used by writers (vernice da scrivere), which he mentions in chap. 10, was that with which they rubbed over the paper made of cotton in order to prepare it for writing on; it was a kind of resin, powdered very fine, which is still in use. (14) He then teaches how to draw with a pen on paper; and then, advancing progressively, he shews how to tint paper of all colours, and to make transparent paper for tracing the designs of the best masters, and strongly recommends drawing from nature.

He then advises his pupil, and admonishes him as to living temperately; what company to select; and how he should first draw with charcoal, and then fix his drawing with the stile. He next directs how to determine the proportions of things seen at a distance; and concludes with instructions for painting in water-colours, and for making charcoal crayons.

These things should be borne in mind by modern artists, as they cannot deny that many of them, useful and deserving praise for their simplicity, are now wholly lost.

In the second part of the book, which terminates at chap. 66. Cennino teaches first how to grind colours; then their names and properties; and points out which are durable, and which fugacious: which should be used on pictures, on walls, in fresco, and in secco, and which on paper: and he is so exact in the most minute particulars as to excite surprise. He then directs how to unite one colour with another, so as to form a third. He next shews how to make pencils of minever and of hog's bristles; for in those days they had no others. And whoever considers the subject must be astonished to see, that with so few colours these masters could produce works which, by their brightness and high state of preservation, awakened the envy of artists after a lapse of four centuries. And if we, who think we have conquered them by our new discoveries in chemistry, could see, after the lapse of an equal space of time, what would become of modern pictures, we should perhaps be persuaded of the great esteem in which this ancient simplicity should be held. For example, to speak of black pigments only, it will be found that they had but five, while we have as many as sixteen. (15)

The third part of the book begins with instructions for painting on walls in fresco; and treats of the colours, of covering the wall with mortar, of proportioning the space, and of drawing. He then proceeds to colouring, after the manner taught by Giotto to Taddeo Gaddi, and by him to Agnolo his son, the master of Cennino. And it is here that we learn, from the dictum of Cennino, that Agnolo coloured better than his father. I shall not be diffuse on this part of the art, that I may not repeat the precepts of the author. I shall merely say, that those which he lays down in this part of his treatise are so many, and so well arranged, as to be of great advantage to living artists, who too frequently are in want of precise and practical instructions in the highest branch of painting. It is in this part of the work that the author establishes the canon of the proportions of the human body with much simplicity and clearness. It is singular, that in speaking of the female body, he says, "leave that

of the woman, for there are none perfectly proportioned;" which sentence being, as it appears, common to those times, may prove a good criterion in judging of pictures of that age. He continues afterwards to shew how to paint on walls in fresco and in secco, and to mix the colours, pointing out which may or may not be used in fresco. And let me call the attention of artists to the egg-tempera, which is hinted at in colouring walls in secco.

When the author has shewn how to colour flesh, he proceeds to shew how to paint draperies of all kinds of colours; but he speaks more at length of a drapery of ultramarine blue, which, in those times, was called by a figure of speech

(antonomasia) a mantle of the Virgin.

He concludes this part with directions as to the manner of colouring mountains, trees, grass, and buildings; and gives directions for drawing them in perspective, from which the low state of that science plainly appears. This is the reason why, in very old pictures, the architecture always appears defective and disproportioned; for these masters made the point of sight too near, and too much below the buildings.

In the beginning of the fourth part, and in six whole chapters, Cennino teaches the manner of painting in oil on walls, in pictures, on stone, on iron, and on whatever you

please.

He teaches how to grind the colours, and says, they can all be used in oil except bianco sangiovanni. And he speaks not only, as Vasari asserts, of painting grounds (campi), but also of painting draperies, flesh, mountains, trees, &c. And what is more astonishing still, is to see that these old masters painted also on walls with oil baked in the sun, and not prepared by fire, which no one, that I am aware of, ever suspected, as it is said that painting in oil was invented by John of Bruges. Whence it is still more evident to me that no one ever read beyond chap. 89 of this book; or if any persons have read the five following chapters, that they affected to be ignorant of them, as I shall hereafter shew.

In the eight following chapters the author treats of the

mode of ornamenting paintings on walls with gold, with tin, and with relievos. And this is a proper occasion to notice a passage in chap. 96, which, in my opinion, displays the honest and religious character of Cennino. He strongly inculcates the constant use of good colours and fine gold, especially in the figures of the Virgin, which, besides the fame that it brings the artist, consoles him with the hope of obtaining for his soul and body the mercy and bounty of God and of the Virgin.

He afterwards, in teaching the method of painting in distemper, discusses first (in eight chapters) all kinds of glue, which are, says he, "the foundation of this part of the art." He then proceeds to state how wood is prepared for pictures, and how cloth is glued on it. This art will be considered a novelty by many; and it may be useful in some circumstances to know that it was practised, as it may enable one to judge whether a picture be ancient or not; because the question whether canvass was stretched upon panels before the ground was laid, has been much discussed among us moderns; and frequent frauds have, on this account, been attributed to picture-dealers. (16) Speaking afterwards of the grounds, he begins by informing us of the nature of plaster, of its preparation, the manner of using it, and how the surface is to be planed, and with what instruments. He speaks at length on these subjects, as far as the end of chap. 122.

From thence unto the end of chap. 131 the author treats of drawing on panels on which grounds have been laid of plaster, and also on walls; of relieving them with fringes and other delicate ornaments made of plaster, varnish, or wax, as was the custom at that time.

In nine other chapters Cennino gives us afterwards a complete treatise on gilding, and on tempering and laying on bole; he tells us how to gild, and how, and with what kind of stone or teeth, to burnish gold. Among these stones he instructs us to form one of lapis amatisto, which was probably used by the greater number of painters. And having at heart the perfection of the art, he condescends to tell us how to

repair those parts which are not neatly covered with the gold; and frequently recommends, for the artist's benefit, to cover the whole ground with gold. He then teaches us how to burnish it, and points out what gold is the best for covering flat grounds, what is used for cornices, and what for fringes and delicate works.

The details of the art of engraving (granare) upon gold, of marking the outlines of the figures, of making draperies of gold and silver, or colours of various kinds, are minutely described as far as chap. 143. Then follows how to paint on gilded tin on walls, and the manner of covering it first with colours in distemper, and afterwards of glazing it with oil-colours. And certainly this passage, which is contained in chap. 143, settles many questions, and proves that the celebrated Count Cicognara was right in saying, that he found many different methods of painting on a single picture. (17)

With the same diligence and love of the art does Cennino teach us in the next seven chapters to imitate velvet and stuffs on walls, and silk on pictures, and the quality of rich draperies of ultramarine blue, of gold, and of purple. Then he teaches us how to paint flesh in distemper, to imitate a dead or wounded man, and all kinds of beards and hair; and that he might not omit giving precepts on any branch of the art, he describes the manner of painting water, rivers, and fish, on pictures and on walls.

And as persons sometimes wished (such being the custom at that period) to enrich pictures with ornaments of gold, for the laying on of which mordants were necessary, Cennino meets this want in three chapters, in which he teaches the nature of mordants, and the manner of tempering them.

In three other chapters he then teaches how, and when it is necessary, to varnish painted pictures. And on this subject only does he seem to me to have failed, in not having preserved the remembrance of what kind of varnish was used by that school, as I have observed in the note to this chapter.

We derive no small advantage from chap. 157 and the

three following, where he speaks of painting in miniature, and of laying gold on paper and in books. For we despaired of discovering the method of gilding in that beautiful and brilliant manner practised by the ancients, with which they illuminated their manuscripts; and we are under great obligations to Cennino, who has rescued this secret of the art from oblivion. We find that great part of the skill depended on the nature of the plaster (gesso) they used, on their diligence in smoothing the surface, and on the goodness and thickness of the gold. The last of the four chapters above mentioned is employed in teaching how to grind gold and silver, and how to temper them for the purpose of illuminating. And as verde terra takes the varnish with difficulty, the author terminates with pointing out a perfect method of varnishing it.

Chap. 161, which is indeed very curious, makes us acquainted with the custom that existed in the times of the author, of painting the living human face by artists; but what is still more curious, it was painted with oil-colours, and varnish to strengthen the colours, "ad olio ed a vernice per caleffare." Now no one ever imagined that this also was a secret of John of Bruges. And if the painters of that age had attained the art of grinding colours in oil for this purpose, it is no mark of wisdom to suppose that if they could apply them to the faces of living men and women, they could not also make imitations of such faces with them on pictures.

Having thus terminated his precepts respecting every kind of painting, Cennino gives, in the last nine chapters, a short treatise on the method of taking casts of a head, and of the whole naked figure, of the artist himself, or of another person, which he considers useful and necessary to artists. He then teaches us how to take casts of medals, seals, and coins, making us acquainted with the secret of a kind of ashes, equally fit for moulds of small things for making casts, as bronze or other metals are for large things; and if the methods described by him are not now practised, the know-

ledge of them will be useful, and will conduce towards the advancement and history of the art.

Here Cennino ends the practical and mechanical treatise on the different modes of painting practised in his times,—a treatise similar to which has not been written by any one since the revival of the fine arts until our own era,—a treatise, in fine, which the art of painting yet wanted; for all the other writers on the subject, as I have before said, have lost themselves in the mazes of metaphysics, instead of instructing us in the practical parts of the art.

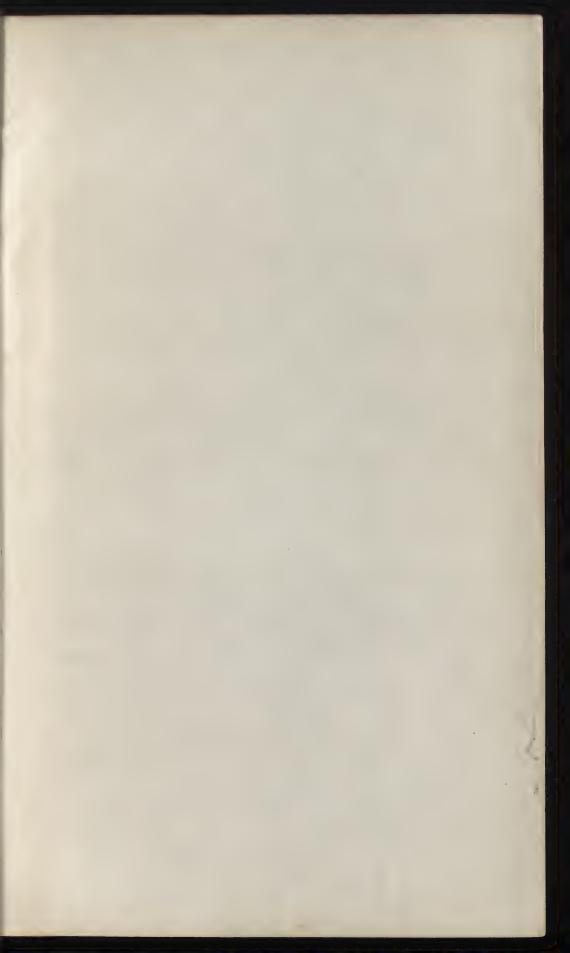
Every compassionate and noble mind must grieve to reflect, that the author to whom we are indebted for this treasure composed the work in the confinement of a prison, in which he was cast for debt at the great age of eighty years, or thereabouts, according to the calculation we made in another page. The prisons, delle Stinche, in Florence, were destined to receive prisoners for civil debts, as noticed by Bottari. Nor can we forgive Baldinucci, who, in his Life of Cennino, says, with cold indifference, "we may say that Cennino composed this work without any disturbance or occupation of mind or body; and this he owed to his poverty, since his treatise is dated from the Stinche, prisons in Florence, thus called by the first prisoners who were confined there, and who had been formerly in the castle of the Stinche of Valdigreve."(17\*) And is it not sufficiently melancholy for a man so venerable on account of his grey hairs, - and an artist also, who, by the confession of Vasari, had painted in Florence many works in conjunction with his master, and a picture of the Virgin entirely with his own hand, which was under the loggia of the Hospital of Bonifazio Lupi, so well coloured, that, adds the same Vasari, "it is to this day in good preservation,"—to lose his liberty on account of his poverty? While his master died leaving his sons immense riches, the unfortunate disciple remained to the end of his life a beggar, or perhaps died in prison, or in some hospital. We cannot conjecture what reduced him to so hard a fate. For if we consider his skill in painting, he seems, by the above-cited testimony, not to have been an indifferent painter. If we consider his book on the art, we see that he had a complete and universal knowledge of all branches of his art. And if, in fine, we consider his style of writing, which is the only point of comparison of the minds of authors, we shall find that modesty, gratitude, integrity, good manners, and religion prevail in it. We are then obliged to conclude, that some great misfortune, or sickness, or old age, reduced him to this miserable condition, which he certainly bore with great fortitude, since not a single word of complaint escapes him in the whole work against the adversity of fortune. But that evil destiny which sometimes persecutes the good even after their death, not content with having rendered him unhappy in his old age, pursued him for four centuries, burying in obscurity the greater part of his genius, which will for ever render him illustrious, and commend his name to the remembrance of posterity.

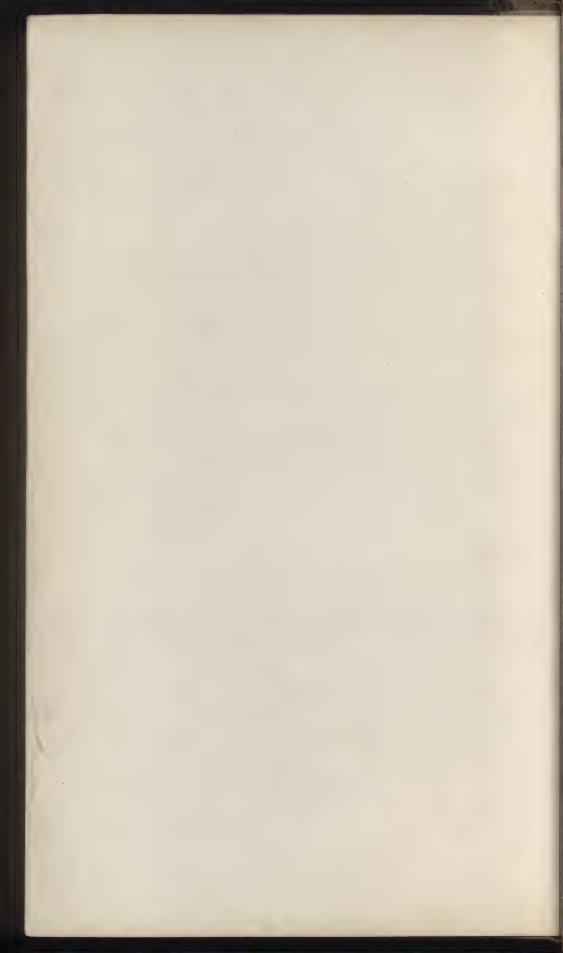
I am firmly of opinion that the publication of this work will prove of inestimable advantage to present and future painters, especially as to the mode of painting in fresco, this kind of painting being almost, to our shame be it spoken, forgotten and lost; and on this subject we should have confidence in the words of Cennino, on account of the above-cited passage from Vasari, who calls him a great colourist, because of that work of his which he had seen. I conclude every one may turn to his own advantage the secrets and precepts of the author respecting other modes of painting.

I have now only to say something on painting in oil, as I promised; for I cannot endure that, with this indisputable evidence, another should pretend to the glory of having taught our Italy an art that was always known and practised by the

sons of this mistress of nations.

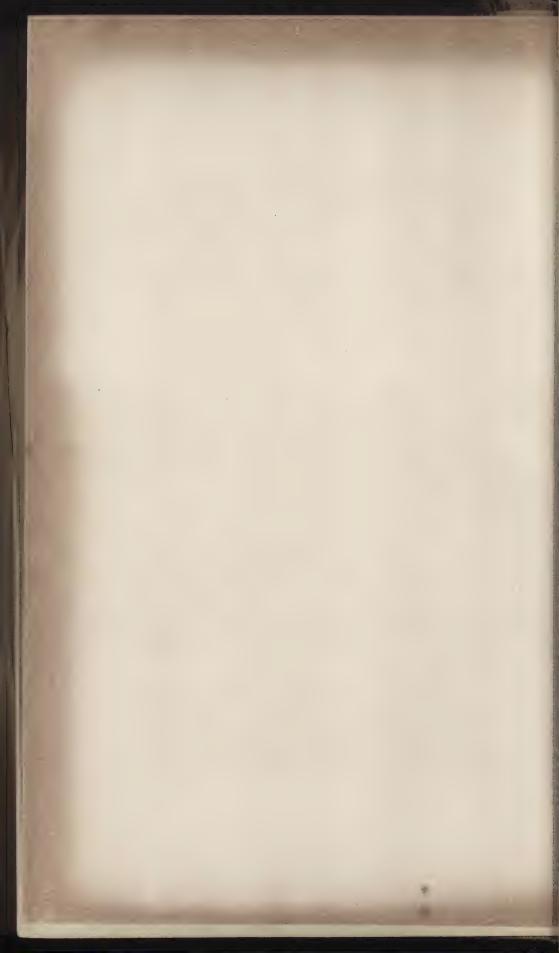
Vasari, in his life of Antonello da Messina, and in the Introduction to the Three Arts, cap. xxi., relates that John Van Eyck, otherwise John of Bruges, having spoiled a picture by exposing it to the sun in order to dry the varnish, was much vexed, and bent his mind on seeking for something which should dry the colours; when, after he had tried many







Firgin vond Alebor Zippe Dalmusu



things, both in a pure state and mixed together, he found at length that linseed-oil and nut-oil were more drying than any others he had tried. And this discovery is, by most writers, said to have taken place about the year 1410. Vasari continues by informing us, that John having improved this mode of painting by experience, filled the whole world with his fame, and excited the envy of other artists, "especially as for a long time he would not suffer any one to see him work, nor would he teach any one the secret. But having grown old, he at length taught it to Roger of Bruges, his disciple." Now, take notice that John was born in 1370, and consequently must have been forty years old when he made the discovery.

Now, continues Vasari, one Antonello da Messina, who had studied design many years at Rome, and resided for many years at Palermo, and afterwards at Messina, his native place. came from Sicily to Naples; and having heard that a picture painted in oil had been sent to the king Alphonso, he made a point of seeing it; and having seen it, he went to Flanders and to Bruges, where he became intimate with John, then an old man, and, by means of presents, succeeded in inducing him to teach him this mode of colouring. From thence he returned to his own country, lived there a few months, and then went to Venice, where he determined to fix his abode. was there that he became acquainted with Domenico Veneziano, to whom after a short time he communicated the secret. This Domenico Veneziano, who afterwards went to Florence, contracted an intimate friendship with Andrea del Castagno, "and being really very much attached to Andrea, he taught him how to paint in oil, which was then unknown in Tuscany." (18) Finally, Andrea, excited by envy, treacherously murdered the unfortunate Domenico.

This is the history of the discovery of painting in oil, as related by Vasari, without quoting either his authority or the evidence or writings of any author who had been his guide, and whose writings would confirm what he had said. Malvasia, in the life of Lippo Dalmasio, justly blames him for this negligence; and this tale, repeated by succeeding writers

in every corner of Europe, established the universal and erroneous tradition of these circumstances. Many endeavoured to combat it, but unsuccessfully; (19) for when an error is once promulgated by the pen of a writer of eminence, such as Vasari was, if it be not instantly destroyed by criticism, it becomes confirmed by time, and the endeavours of posterity to eradicate it will be ineffectual. But it will not be difficult, by the assistance of chronology and of facts, to prove that the narration of Vasari is one of those romances which will not resist the ordeal of criticism, because it had its origin in those times of credulity when genius was more under the guidance of good faith, and of the love of the marvellous, than of sound judgment.

Nevertheless, it is said by some, and among them Baldinucci and Lanzi, that Vasari never intended to deny the use of such painting in oil in Italy, even before John of Bruges. (20) The politeness of those authors is to be praised, who, endeavouring to cure the gross blindness of their predecessor, force themselves to find means of reconciling his assertions with facts that prove the contrary. But I adhere to the letter of his opinion, because in things of this kind one cannot give place to various interpretations, comments, or hypotheses. Criticism is founded on what is said, not on what is intended to be said. If any other person makes the same objection to me that Lanzi makes in the life of Antonello da Messina, saying, "And how, if the fact be denied, shall we give the lie to a tradition sanctioned by so many schools?" I will reply, that criticism values that author only from whom a fact is derived, and not those, even if there were a million of them, who have copied and repeated what he relates.

Vasari says, in the Introduction to the Three Arts, &c., chap. xxi., "that the first inventor of painting in oil in Flanders was John of Bruges;" and in the life of Antonello da Messina he tells us, that the said John "at length found that linseed and nut oil were more drying; that he (John) would not let any one see him work, nor would he teach the secret to any one; but being old," &c. And in the life of Andrea

del Castagno, that "Domenico Veneziano, while in Florence, contracted a friendship with Andrea, and, as he really loved him, he taught him the method of colouring in oil, which was not then known in Tuscany."

Now, we shall see whether this story of Vasari's is reconcilable with chronology.

John of Bruges was born, as we have mentioned above. about the year 1370, and discovered the art of painting in oil in 1410. He was then in the fortieth year of his age. He, it is said, sent a picture painted in oil to Alphonso, king of Naples; but that monarch did not begin to reign until 1442,(21) John was then seventy-two years of age. The attention of Antonello da Messina was attracted by the rumour which arose respecting this picture, painted in the manner invented in Flanders, that is, in oil. But when was this Antonello born? According to most writers, in 1449, and in 1447 according to the Annals of Messina, written by Gallo, and quoted by Hackert, that is, nine or eleven years before the death of King Alphonso, for this prince died in 1458. Supposing that Antonello saw the picture of John also after Alphonso began to reign, he could not certainly remove to Flanders before he became adult and a painter, that is, between the twenty-fifth and thirty-fifth years of his age. Let us take the mean, that is, thirty years, and add the five which elapsed between 1442, the first year of the reign of Alphonso, and 1447, the epoch of the birth of Antonello. According to the Annals of Messina, we shall then have a period of thirty-five years to add to the seventy-two which John of Bruges had attained when Alphonso ascended the throne. By this calculation, Antonello would have found the painter in his 107th year, and have learnt from him only in 1477 his celebrated secret, "that linseed and nut oils were the most drying." But suppose pictures are to be found in Venice painted by Antonello, and by him marked 1474? and suppose that Domenico Veneziano, to whom he communicated the secret, was killed in Florence by Castagno in 1470? how can we reconcile the age of only thirty years, which I assigned

to Antonello, with those many years that he had previously spent in drawing at Rome, and with those he afterwards passed in working at Palermo and in Messina, where he acquired the name of a skilful artist, according to the account of Vasari? how reconcile the epoch of 1437, in which Cennino wrote his work, in which he describes painting in oil at length, on walls, pictures, &c., with the birth (which happened ten years after) of this Antonello, who was to travel into Flanders, and be the first to bring into Italy the great secret of painting with linseed and nut oils, which before this period was not known in Tuscany, and was then made known (about 1470), by the works of Domenico Veneziano? How, in fine, shall we reconcile the more than centenary age of John of Bruges with the traditions, which certainly say that he died old, but not so very old?

We are forced to conclude, that this tale was a mass of chronological contradictions, and consequently erroneous and inadmissible. And it is another proof that Vasari never read

the work of Cennino.

Passing from times to facts, we must first prove what was the real opinion of Vasari. It was, that painting in oil was not known in Tuscany before John of Bruges, Antonello da Messina, and Domenico Veneziano, to whom he assigns the date of 1470, and who taught it to Andrea del Castagno. Nor can we retrench a part of this narration, and say, that he only intended to speak of a greater perfection in this method of painting. His words are clear and plain; and according to his account it was John of Bruges "who first found, after many experiments, that the oils of linseed and of nuts were the most drying; he was the first who saw that mixing the colours with these oils gave them great brilliancy, &c.; and what appeared to him very admirable was, that they united together infinitely better than colours in distemper. John was much delighted with this invention," &c. And all this, after having said, previously, "but although many had experimented, and sought much for this secret, yet no one had found any good method, either by using liquid varnish or other sorts of

colours mixed with the vehicles," &c. (22) Hence some writers have endeavoured to defend him, though unsuccessfully, by supposing that he did not mean to exclude every other way of painting in oil. (23)

In order to shew by facts the inconsistency of the narration of Vasari, the work of Cennino would alone be sufficient; but nevertheless, in order to prove my argument more indisputably, I shall here record some principal facts, which, although related and repeated by many others, when added to the authority of Cennino, will for ever settle the question of painting in oil having been first invented by John of Bruges.

And first of all comes the monk Theophilus, called also Ruggiero, who before the eleventh century (24) wrote a work in Latin divided into three books, the first of which has this title: Incipit tractatus Lombardicus qualiter temperantur colores. (25) This book was first described by Abraham Lessing (26) in 1774, in a dissertation printed at Brunswick; it was afterwards published in part by Raspe, at London, in 1781; and at length the whole was published by Cristiano Leist, in the sixth volume of the collection of Lessing. Of this Theophilus, the learned Morelli and Cicognara speak at some length. This monk, who was certainly an Italian, according to the correct and reasonable opinion of Cicognara, taught how to paint entirely with oil; for at cap. 22 he says, "deinde accipe colores, quos imponere volueris, terens eos diligenter oleo lini. sine aqua, et fac mixturas vultuum ac vestimentorum, sicut superius aqua feceras, et bestias sive aves aut folia variabis suis coloribus, prout libuerit."(27)

This passage silences Budberg and many other panegyrists of John of Bruges, who maintain that the method of Theophilus was fit only for coarse works and painting grounds (campi), as Morelli wisely remarks. (28) Here is a very early notice of the method of painting in oil brought into Germany by an Italian, and which must have been common enough, since copies of this manuscript are found at Wolfenbuttel, at Vienna, and at Cambridge; and it is of no importance that Theophilus says, pictures painted in his manner should be

exposed to the sun to dry. Cicognara<sup>(29)</sup> has replied like a wise and learned man to this objection, which overcame and somewhat embarrassed Morelli. Cennino (chap. 90) does not recommend exposing pictures painted in oil to the sun, but desires they may be covered over and left to dry naturally.

We come, in the second place, to the picture in the imperial gallery of Vienna, described in 1783 by Mechel, and which was painted in oil by Tommaso da Modena in 1297. (30) Then the picture of Serafino Serafini, also a native of Modena, painted in oil in 1385, and so considered in 1789. (31)

The pictures mentioned by Raspe<sup>(32)</sup> follow next. This author refers to an order of Henry III., king of England (quoted by Walpole in his *Anecdotes*), directing his treasurer to pay a certain jeweller named Odo, and his son, the expenses incurred for oil and varnish used in the pictures at Westminster.

Then an historical picture of King Richard II., who died in 1399, done in oil, and preserved by the Earl of Pembroke at Wilton. (33)

Nor must we be silent concerning the pictures of that master, Giorgio da Firenze, who was invited into Piedmont by Amadeus V., and who painted in oil in 1314 at Chambery, in 1318 at Borghetto, and at Pinerolo in 1325. (34)

After them comes Lippo Dalmasio, who painted in oil at Bologna a picture of the Virgin on the arch of the Porta di S. Procolo, and which he painted about the year 1407. The testimony of Tiarini, whose name was eminent among the disciples of the Carracci, leaves no room for doubt on this subject. For he took a ladder and mounted on it, to make a close examination of the picture; and he found that not only the figure of the Virgin, but the ground of the picture also, was painted in oil. (35)

It is sufficient to refer, in the last place, (36) to the San Girolamo, painted in oil at Naples by Colantonio del Fiore, and marked at the foot by him with the date 1436; that is, six years before King Alphonso received his present of the picture of John of Bruges.

De Dominici, an accurate writer of the lives of the Neapolitan painters, after having quoted the following passage from the manuscripts of Marco of Siena (a painter who worked in Naples in 1550), namely: "in the beginning of that (the fourteenth) century, there were painters who made known sufficiently, by their works in fresco and in oil," &c., records, in the life of Colantonio, the notice of Eugenio quoted in the Napoli Sacra, p. 111: "In the chapel of the family of Rocca there is a picture in which the saints Francesco and Girolamo are represented so naturally in the act of studying that they appear alive: this was the work of Colantonio, an illustrious Neapolitan painter, the first who painted in oil at Naples, whatever foreigners may say to the contrary." And in the life of the Cavaliere Massimo Stanzione, a painter and architect much praised, and called the Guido of Naples, who flourished about the first half of the seventeenth century, he relates that certain ancient manuscripts on the art had come into the hands of the Cav. Massimo from those of Paolo Porporo, a painter, upon which he began to compose lives of some of the painters, and he wrote certain memorandums and notes which afterwards came into the hands of De Dominici, and served as a foundation for his work. Among the notes, some are written to rectify the errors of Vasari; one of them is as follows: "Thus, above every other thing, does he refute the account of John of Bruges and of Antonello da Messina with the fact, that painting in oil has always, - that is, from time immemorial, - been practised at Naples, at least since 1300; for the S.S. Nunziata painted at that period are painted in oil, and other ancient pictures that I remember; and I think I am not deceived in the pictures of our painters of the thirteenth century. But I know it is written that Antonello, (37) who was the son of an engineer named Giuseppe, although born in Sicily, went with his father into Flanders when he was a man and knew how to paint, and was a disciple of Colantonio del Fiore in Naples, and that he was taught by John of Bruges, a Fleming, who painted well in oil; and John went mad in endeavouring to make colours and var-

nishes that would always remain fresh. Oil-colours were used in Flanders and in Italy, but they did not know how to use them properly, having always the same difficulty that was experienced by painters who did not know how to paint in fresco. Antonello afterwards returned to Italy, and lived at Venice, where he taught some persons to paint, but not to paint in oil, which, as has been observed, had been always practised in Italy; and whoever reflects, will remember that there are (at Bologna, for instance) pictures in oil painted before the time of John of Bruges; and if Vasari and Ridolfi assert that painting in oil has only been practised since the time of Antonello, they have erroneously given credit to the fact without proper reflection or diligent observation; for it was practised in Bologna, and in Rome, and, as I can prove with the greatest accuracy, in Naples. Moreover, the picture given by John to King Alphonso I., said to represent the three magi, did not become famous from the king's having seen it, but because it was considered a fine picture; and the colouring in oil was not looked upon as a novelty. It is true, also, that Zingaro and Donzelli repaired several parts of it which had been damaged in the journey, and the portraits of himself (Alphonso) and of Ferdinand his son were substituted for those of the magi, with the same oil-colours, such colours being common in Naples."(38)

I have with great pleasure quoted the whole of this note, in order to shew that in this part of Italy, which Vasari does not sufficiently illustrate, painting in oil was always practised. And the evidence of Massimo is worthy of confidence, because, as De Dominici says, "he was considered a just and good man, and was esteemed very skilful in his profession."

I might strengthen my remarks by quotations from Della Valle, Tiraboschi, Vernazza, Federici, and even from Lanzi himself; but I think it superfluous and pedantic to quote unnecessarily; it is sufficient for me to have proved clearly, that the account given by Vasari is not reconcilable with chronology; that it is contradicted by facts; and that it is only, as he relates it, a romance, or tale of the imagination.

I will not certainly omit that Bartolomeo Faceo (B. Facius), who wrote in 1456, and was consequently contemporary with John of Bruges, and who says many and great things concerning him and his genius, does not mention him as the inventor of painting in oil. (39) And it would really be a great omission in this writer not to mention this circumstance, which has been notorious all over Europe, and was sufficient to entitle the person who claimed this invention to immortality.

I shall only add a few brief remarks, extracted from the book of Cennino, which will completely establish my argument.

In the first place, I shall notice what Cennino himself has left in writing concerning those parts of the art which he teaches in his book. In chap. 1, he says openly, "I shall make notes concerning those things which were taught me by the before-mentioned Agnolo my master, and which I have proved with my own hand;" then in chap. 4, he says, "and these are the precepts of the great masters before mentioned, of which, with what little knowledge I have acquired, I shall discourse step by step." Whence we cannot help believing that, if the method of painting in oil had been recently discovered in Flanders, this author, who is so minute and exact in describing the practices of other masters, would not, when speaking on the subject, have omitted to mention the circumstance. (40) It is true that he says in chapter 89, that the Germans practise it much—"che l'usano molto i Tedeschi." Baldinucci does not let slip this opportunity of defending Vasari, and remarks, "by Germans he meant also the Flemings." But he—I speak it with all the respect to which he is entitled—did not understand the force of this phrase, which is in the words "che l' usano molto;" that is, that it was practised almost universally among the artists of that nation. We have seen that if we desire to know the method of painting in oil in 1410, and of which John of Bruges pretends to be the inventor, "he would not let any one see him paint, nor would he tell the secret to any one; but being old," &c. Now how could Cennino have

said, "which was much practised by the Germans," if it were practised by John only? And we cannot be surprised if it were practised generally by the Germans, since we know that the treatise of Theophilus was much diffused, and that there

were many copies in that country. (41)

Baldinucci afterwards says, "It must be remembered, that this invention, having already, since 1410, run its course in Italy and Tuscany, and Cennino being acquainted with it, it was possible for him to notice it in his book, and also to practise it; and this hint will be sufficient to remove every shade of difficulty in a thing of so much consequence."(42) But he either dissembled, or forgot the writing of Vasari. How could this method have run its course in Tuscany in the year 1437, if it was still unknown there in 1470? How could Cennino have spoken of linseed-oil only, if John of Bruges had discovered that this and nut-oil were the most drying? Why should we be told now for the first time, that linseed-oil, with which Cennino teaches us to paint, is to be baked in the sun, and not boiled on the fire? Why does he say the best was prepared at Florence? These remarks shew that it was an old practice. Who has ever said, that to prepare oil in such a manner was taught by any person,—even by John of Bruges? And is it known that he ever taught to paint in oil "on walls, on iron, on stone, on glass, or on what you please?" May I be forgiven for my suspicion of the fidelity of Baldinucci, because he no where mentions this practice of painting in oil on walls, and because he makes it appear that he has read nothing but this chapter, and not even the whole of this to which he refers? This I cannot believe; and I am convinced that he purposely concealed the contents of the six chapters of this part of the work (which he must certainly have read). That he might not contradict Vasari, or mutilate the sentence, he assures us that Cennino "does not mention either walls or pictures." But could it be thus, if the invention of John of Bruges took place in 1410? If he guarded his secret jealously until his old age, how was it possible for this secret not only to traverse all Italy before 1437, but to become gigantic, and

be applied to painting on walls? To this the picture of Lippo Dalmasio, painted in oil on a wall in Bologna about 1407, and the chapters 143, 150, and 151 of Cennino's book on the art,

will reply.

In conclusion, what will the apologists of John of Bruges say when reading the precepts contained in chapter 143, concerning glazing the draperies with oil-colours in pictures painted in distemper? (43) Is not this perhaps the sword which will sever the knot; since if oil-colours were in use for glazing pictures painted in distemper, what doubt can remain concerning the practice of using them on the whole picture?

And in order to make this properly understood by the students and amateurs of painting, it should be stated, that some writers who discuss the question of the origin and invention of the mode of painting in oil were mistaken as to a principal part, namely, as to the oil itself; since some person has said that this monk Theophilus, or Ruggiero, treated of tempering the colours with linseed and nut oils; others, that Cennino likewise taught how to paint with nut and linseed-oils. These fallacious assertions may perhaps mislead the readers of the works of these authors, whose names I shall conceal out of respect; my object not being to play the censor, but solely to investigate the truth, and display it in a full light.

It appears to me, therefore, evident from chapter xxii. of the first part of the treatise of Theophilus, to which I have before referred, that linseed-oil only is there mentioned; and we are directed to temper the colours with this in the same manner as we were formerly directed to mix them with water.

Nor does Cennino, in his whole book on the art, as may be seen, ever mention any other oil than that of linseed.

Vasari considers that John of Bruges was the first who worked with both kinds of oil, and was the first to discover that the oil of linseed and that of nuts were the most drying. It is, then, evident that Theophilus and Cennino either were not acquainted with any other oil, or that they preferred linseed-oil; and that the merit of having mixed

colours promiscuously with either of these oils was given by Vasari, for the first time, to John of Bruges, although it is not known, as I have before shewn, from what source he drew his information.

For this reason, it seems to me that I have proved, even more fully than was necessary, that the narrative of Vasari, of the invention of painting in oil, is no more than a fable, to unveil which for ever we require no assistance but that of chronology and facts; that the practice of painting in oil is at least as ancient as the monk Theophilus; and that since his time it was continually in use among artists until the time of Cennino; that, in fine, the method taught by our author was not certainly derived by him through the Flemish painter.

If any one should inquire of me, Why, then, should his name, and that of Antonello, be so famous—and why should they write on the monument of the latter in a solemn epitaph, (44) " sed et quod coloribus oleo miscendis splendorem et perpetuitatem primus Italicæ picturæ contulit?"(45)—I shall reply, that this epitaph is certainly reported by Vasari in the life of Antonello; but as the Cav. Morelli (Notizie d' Opere, &c., p. 190) remarks, "it is not to be seen, and it has been sought for in vain, in our times." It is, then, doubtful whether it ever existed; nor do we know who placed it, or in what place it is to be found. Now, being willing to act with generosity towards this noble writer, and to believe that his religion was not overcome by deception, we should perhaps be able to admit that we were indebted to John of Bruges for the practice of tempering colours with both nut and linseedoils, and to Antonello for having used and made common through all Italy a method which in beauty greatly exceeds distemper-painting, which until his time had always been preferred.

Whereupon I agree with the opinion of the Cav. Boni<sup>(46)</sup> and others, who endeavour to reconcile these facts. But I shall always firmly believe that either the writings in which so many authors agree are false, or that Antonello of Messina

could not have known John of Bruges, or taught painting in oil as a thing new and unknown in Italy; for this great obligation we owe to Cennino, whose book is a perpetual and indestructible monument, sufficient to revenge the loss of that glory of which he has been robbed by the foreigner. (47)

### NOTES

TO THE

### CAVALIERE TAMBRONI'S PREFACE.

(1) Member of several learned societies; among others, associate of the Academy of St. Luke, of the Fine Arts at Vienna, of the Archeologica of Rome, of Literature and the Fine Arts at Paris, &c.

(2) Colle is a city of Tuscany.

(3) It is to be observed that Cennino and his predecessors did not possess any brown pigments.—Translator.

(4) Cennino does not treat of mosaic painting.—Translator.

(5) This picture was, by the order of the Grand Duke Leopold, removed and fixed upon canvass by Pacini, and is now preserved in the Florentine Gallery. *Rosini*, vol. ii. p. 195, n. 16.—*Translator*.

(6) In Vasari's life of Dello we find the following notice of Cennino's book: "And of these works [ornaments in relievo which were afterwards gilded], and many similar, Drea Cennini discourses at great length in his work, which we have before noticed sufficiently." It is to be observed that Vasari here calls the author "Drea Cennini," which was the name of his father. See chapters 1 and 45.—Translator.

(7) It is somewhat singular that another ancient manuscript on the arts, written by Lorenzo Ghiberti, and still preserved in the Magliabechian Library at Florence, which is noticed by Vasari in his life of Lorenzo, should be additional evidence of his (Vasari's) inaccuracy or wilful blindness. He tells us that "the same Lorenzo wrote a work in the Italian language, in which he treats of many things, but in such a manner as to be of little use. Its sole value appears to me, that, after having spoken of many different painters, and particularly

of those mentioned by Pliny, he briefly mentions Cimabue, Giotto, and many others of those times; and of these he says much less than he ought to have done, and for no other reason than that he may speak of himself, and enumerate one by one all his own works. Nor shall I withhold, that although he pretends the book is written concerning other persons who knew better than himself how to draw, engrave on stone, and cast in metal, yet in the process of writing it, he continually speaks of himself in the first person,—'I do, I say, I did, I said.'"—See Vasari's Life of Lorenzo Ghiberti.

But Vasari does not inform us, as Lorenzo does, that Giotto painted in oil on walls, on pictures, and also in mosaic, the nave of St. Peter's at Rome-" Costui in muro lavorò all' olio, lavorò in tavola, lavorò in mosaico, la nave di S. Pietro in Roma;"—thus confirming the fact that Cennino taught painting in oil in the same manner that Giotto practised it. The date of the book is not given; but Vasari mentions that Lorenzo was alive, and at Florence, during the plague in 1400. Count Cicognara speaks at some length concerning this book of Lorenzo's, which he had examined, and states that he wished to publish the whole manuscript, but found it contained matter not strictly belonging to the arts; and its contents were so various and so undigested, that he thought its value not equal to the cost of publishing, or even of transcribing it, since the greater part is occupied in philosophical disquisitions, and is mixed with the most extravagant astrological doctrines. His commentary on the proportions of the human body he thought might be valuable, and perhaps worthy of publication, if the text had been more correct, and if the author had expressed himself with the precision that might have been expected from a statuary; but he adds, that it is quite impossible for the reader to extract any information from it, and therefore he has printed the commentaries on the painters and on Lorenzo's own works only, with all their errors of style and numerous repetitions. They do not contain any practical hints or suggestions. See Cicognara, Storia di Scultura, vol. iii. p. 167; and vol. iv. p. 171, 172, and the note to chap. 4, b. iv.; and see Vasari's Life of Lorenzo Ghiberti.—Translator.

(8) Bandini, Catalog. no. 5, p. 307: "The manuscript, though badly put together, contains many secrets not to be despised, and is deserving of a diligent examination by some cultivator of the fine arts."

<sup>(9)</sup> Vasari, ed. Livorii, vol. i. p. 459.

(10) Lanzi, ed. di Clas. vol. i. p. 71.

(11) A work mentioned by Muratori (Antiq. Ital. vol. ii. p. 366), and preserved in the Biblioteca Capitolare of Lucca, many centuries older than Theophilus (who lived in the eleventh century), contains directions for painting in mosaic, for colouring metals, and other similar works. Cicognara, Storia di Scultura, vol. iii.—Translator.

(12) These repetitions have in most cases been suppressed, as un-

necessary in a translation .- Translator.

(13) This vocabulary has been omitted, for the reason above mentioned.—Translator.

(14) It is now called "pounce" in England.—Translator.

(15) Marcucci, Sagg. Anal. p. 254.

(16) See some remarks on this subject in the Translator's Preface, and also in a note to chap. 138.—Translator.

(17) Cicognara, Storia di Scultura, vol. iii.

(17\*) The historical evidence of this fact is the following passage at the end of the work of Cennino, which has been unintentionally omitted in printing the translation. It should have been added immediately after Cennino's concluding address. "Finito libro referamus gratia Christi, 1437, a dì 31 di Luglio. Ex Stincarum f."-Translator.

(18) Vasari, life of Andrea del Castagno.

(19) Requenos (Saggi sul Ristabilimento, &c., vol. i. ed. 2, Parma, p. 168) relates many facts contrary to Vasari; and, among others, records this just remark of the authors of the Roman Anthology, art. Pittura, to which I now refer with pleasure: "Vasari was the first who wrote that Van Eyck was the inventor of painting in oil; and those who have written since he did have all spoken of the invention of painting in oil in the same manner as Vasari. These persons wrote many years after Van Eyck, whence they could not bear testimony to the invention; besides, Vasari does not quote a single author in support of his account."—Tambroni.

(20) "The author of Memoirs of the Painters of Messina is constrained to repeat the little that we know on this subject; namely, that general opinion makes it probable that the birth of Antonello took place, not in 1447, as Gallo will have it, but about 1414 (and the Cav. Puccini is of the same opinion), and that he was the son of a painter named Antonio, the author of a St. Francesco receiving the Stigmata, in the church of that saint at Messina."—Rosini,

vol. iii. p. 105.

Now, if Antonello were born in 1414, and if he died at the age of forty-nine, as Vasari says he did, how could he have painted the pictures at Venice marked with his name and dated 1474? Of what use, also, was the alleged murder of Domenico Veneziano in 1470 by Andrea del Castagno, that he might be the sole possessor of the secret, if Antonello—who was very liberal, as D'Argenville relates, in communicating his knowledge, and had a great many pupils—survived that period, and painted pictures in Venice four years at least (that is, from 1470, the date of his earliest pictures in Venice, to 1474) after the date of the alleged murder of Domenico? De Dominici informs us that the father of Antonello was an engineer named Giuseppe, while Summonzio tells us he was a painter of Messina, Antonio by name.—Translator.

(21) Vide Moreri's Dictionary, art. Alfonso.

(22) The editor's reasoning appears scarcely fair on this subject, since he takes only part of Vasari's account into consideration, instead of stating the whole, and reasoning on it as Lanzi has done. Vasari does not limit Van Eyck's discovery to the simple fact that he had discovered that linseed and nut-oils were more drying than any he had tried; but he adds, "these, then, boiled with his other mixtures, made the varnish which he, as well as all the other painters of the world, had so long desired." It is very singular that this most important passage should have been entirely omitted by the editor. It is in these mixtures that the secret consisted, not in using the oils; and we may certainly conclude that the process of Van Eyck was very different from that of Theophilus and of Cennino, both of whom used linseed-oil, without the mixture of any other substance. It will be observed that lake even was used by Cennino without any addition to increase its drying qualities. The only dryer he mentions (as such) is verdigris, which he used for mordants only. The difference in the texture of pictures painted in the Flemish (that is, Van Eyck's) manner, and those painted with oil alone, or with the modern megelp (oil and mastic varnish), is so well known, that it is scarcely necessary to allude to it. Picturecleaners are perfectly aware of this circumstance, having been instructed by observing the manner in which different solvents act upon such pictures (spirit of wine, for instance, will dissolve old pictures, but it has no effect on pictures painted with oil only: see Lanzi). Vasari gives no clue by which we can discover of what those mixtures consisted; but we know that what Vasari calls vernice liquida did not form part of them, because that had been tried and disapproved of. See Vasari's lives of Antonello da Messina and Alesso Baldovinetti. It is probable that the ingredients were common and cheap, or they would not have been accessible to the greater part of Europe; and they appear to have been equally successful in the sunny climes of Italy as in the fogs of Holland.—Translator.

(23) Lanzi quotes Vasari's account of Cennino's book, which, he says, contradicts his assertion that Van Eyck discovered oil-painting. He then proceeds to say, that, on examination, three things present themselves to us; 1st, that Vasari does not exclude all pictures painted in oil, since he says, this had been long desired, therefore trials had been made of it; but merely that perfect kind of painting, which, when dry, was not affected by water, which heightened the colours, and made them brilliant, and united them admirably. 2d, That the method taught by Cennino was not like Van Eyck's, either because he did not boil his oils with the other mixtures of Van Eyck, or because it was only fit for coarse works, which we can prove, he says, by facts, because he had painted in the Hospital of St. Bonifacio at Florence a Virgin with Saints, which, though well coloured, excited neither the envy nor admiration of artists. 3d, That after such investigations we should neither blindly receive nor reject the accounts we have of ancient pictures having been painted in oil, although in an imperfect manner. (Lanzi, vol. i. p. 71.) Vasari himself seems to have had some doubt of the originality of Van Eyck's invention; and the concluding passages of the life of Antonello give some support to the opinions of Baldinucci and Lanzi. "Such," says he, "was the end of Antonello, to whom our artists are certainly not less indebted for having introduced painting in oil into Italy, than to John of Bruges for having invented it in Flanders, both having benefited and enriched the art. For by means of this invention artists have become so excellent that their figures seem almost alive. And this art should be prized so much the more since we do not find that any writer ascribes this manner of painting to the ancients. And if we could ascertain that they really did possess it, the artists of the century of which we now speak certainly excelled the ancients in bringing this part of the art to perfection." This is another proof that Vasari had not read Cennino's book.—Translator.

(24) Morelli, Notizie d' Opere di Disegno, p. 114. Ruggiero is supposed to have been his name previous to his becoming a monk.

It is mentioned in the treatise preserved at Cambridge.—Translator.

(25) "The Lombard treatise begins by shewing how colours are tempered."

(26) According to Cicognara it was Gotbold Ephraim Lessing who

described the work.—Translator.

(27) Lib. i. "Then take the colours which you wish to lay on, grinding them diligently with linseed-oil, without water, and make mixtures (tints) for faces and draperies, as you did formerly with water; and you will vary beasts, or birds, or leaves, with their proper colours, as you may think fit."—Translator.

(28) Morelli, Notizie d' Opere, &c. In page 114 (published in 1800) he treats again of this work, and gives many new passages, with illustrations. See also Aglietto, Giornale Litterario; Cicognara, Storia di Scultura, vol. iii. pp. 146-172, 2d edit.—

Translator.

(29) Cicognara, Storia di Scultura, before cited.

(30) See annotations to the life of Antonello da Messina, by Vasari, ed. di Clas., vol. v. p. 103. Tambroni.—" The Abate Boni, who possessed a picture by Tommaso da Modena, dated MCCCLI., detached a part, and subjected it to an accurate analysis by means of the Abate Lanzi. Chemistry itself dare not pronounce the absence of oil from this hardened and degenerate mixture." Cicognara, vol. iii. p. 156. "The pictures of Tommaso of Modena appear to have been painted throughout with oil, which the chemists deputed by Lanzi dare not contradict." Ibid. In addition to the above extracts, I give the following from Lanzi, that the reader may form his own opinion relative to these pictures. "Sig. Co. Durazzo assured me in 1793, that when he was at Vienna he saw some experiments made by skilful men, by the command of, and in the presence of, Prince Kawnitz; and that the unanimous opinion of these professors was, that they found no traces of oil on the picture (of Tommaso da Modena), but that these pictures were painted with fine gums, made into a paste with the yolk or white of an egg; and the same opinion may be formed of similar works of the ancients." Lanzi, Storia Pittorica, vol. i. p. 70, 4th edit. But at page 69 Lanzi admits that it was the general opinion that these pictures were painted with oil; and he adds, that it is very difficult to distinguish pictures painted with wax from those in which a little oil was used. Signor Piacenza and Zanetti both say that it is difficult to form a certain opinion on this point. See Zanetti, Pittura Veneziana, p. 20.—Translator.

(31) Cicognara, before cited.

(32) On Painting in Oil. London, 4to, 1781.

(33) The investigations of Mr. Thomas Phillips, R.A., have shewn that this picture was not painted in oil. See Sarsfield Taylor's Fine Arts in Great Britain and Ireland, vol. i. p. 169. But there is sufficient evidence to prove satisfactorily that painting in oil was practised in England previous to the time of Van Eyck.—Translator.

(34) Cicognara, before cited.

(35) Malvasia, Felsina Pittrice, vol. i.: Vita di Lippo Dalmasio.— Tambroni. The Madonnas of Lippo Dalmasio were the subjects of the admiration and predilection of Guido, who made them his study. See Rosini, vol. i. p. 20. We subjoin an outline from one of his pictures.—Translator.

(36) In addition to these pictures, we should not omit one now in the Gallery at Florence, painted by Andrea del Castagno, the supposed murderer of Domenico Veneziano, dated 1416 (that is, six years after the reputed invention of painting in oil by Van Eyck). "It is painted," says Guarienti (Abbecedario, art. Gio. Abeyk), "in his second manner, that is, in oil." It is in excellent preservation, and is called by Guarienti the wonder of painting, for the patience with which every part is finished, particularly the room in which the action is represented. The rules of perspective are observed with the greatest exactness. See note to Lanzi, vol. i. p. 64.—Translator.

(37) But if this be the Antonello of whom Vasari speaks, and who painted in Venice, he could not possibly have been the pupil of Colantonio del Fiore, who died in 1445. The Cav. Massimo must have fallen into the same chronological error from a defect of judgment.—Tambroni.

De Dominici says that Colantonio died in 1444; but the dates connected with this period are so uncertain, that it is impossible to ascertain their correctness. Supposing that the story of Van Eyck had no other origin than the invention of Vasari, a letter of Summonzio, written on the 20th March 1524, extracted from the sixth volume of *Historical Manuscripts*, collected by the Abate Daniele Francesconi, proves that the Flemish manner of painting, particularly the colouring (which Lanzi says was more brilliant than the Italian), was much admired at Naples; that Colantonio, especially, delighted much in it, and would have gone to Flanders

to study, had he been permitted by the king (Raniero or Renatus, the husband of Queen Janetta of Sicily), who caused him to be taught the tempera and practice of that kind of painting. The writer adds, that if he had not died young, he would have been very eminent, and that from want of time he did not reach the eminence which his disciple Antonello afterwards attained. It is not said that this Flemish manner of painting was in oil; but "la professione di Colantonio tutta era sì come portava quel tempo in lavoro in Fiandra, e lo colorire di quel paese, al che era tanto dedito che haveva deliberato andarvi." See note to Lanzi, vol. ii. p. 290. As this letter was written in 1524, and as Vasari published his first edition in 1550, it is extremely probable that he was acquainted with these circumstances, which must have been known to many persons, although he does not mention his authority, as he should undoubtedly have done. The following passage from Rosini, vol. ii. p. 233, relative to Colantonio, casts some doubt on the chronological correctness of De Dominici, and also seems to confirm the authenticity of this letter of Summonzio, and the fact that Vasari was acquainted with the introduction of the Flemish manner of painting into Naples.

"De Dominici speaks of him at some length, and says, that he painted the Sant' Antonio, mentioned by D'Agincourt, which is dated 1371, and is undoubtedly his work, and also the San Girolamo extracting the Thorn from the Paw of the Lion (formerly in San Lorenzo, now in the Royal Gallery), a picture to which, on the authority of Gian Angolo, De Dominici assigns the date 1436,—that is to say, four years before his death. Whence it follows, that if we allow Colantonio to have been 19 years old in 1371, when he painted the Sant' Antonio, he would have been 84 when he painted the San Girolamo, to which no person in his senses will assent, as the work displays a force and vigour incompatible with an age so advanced. From this indisputable fact we may judge of the manner in which the work is written. From an examination of this picture, also described by D'Agincourt, arises a doubt whether it be really the work of an Italian artist, so much does it resemble the Flemish style; and as there is no certain data on which to form a decision, the question must remain in uncertainty. Speaking of this picture, Signor Piacenza, in the notes to Baldinucci, says, 'There prevails a beautiful expression, a sweetness in the impasto, and a harmony in the colouring.' D'Agincourt adds, 'A colouring brilliant from the variety of the tints, wonderful for its lightness (leggerezza), and a manner deserving of praise in a multitude of particulars.' After these praises, who will believe that it is the work of an octogenarian?"

The letter of Summonzio, before mentioned, says that Colantonio died young, therefore the date of the picture could not have been 1436, that is, sixty-four years after he painted the Sant' Antonio.—

Translator.

(38) "This picture is still preserved in the choir of the church of Castel Nuovo in Naples; and as it appears that the faces of the three magi are portraits of Arragonese, many persons doubt its authenticity; but to me it appears that the picture is indisputably of Flemish origin."—Rosini, vol. iii. p. 106, 117.

As the Flemish manner of painting at this period has been mentioned more than once, it will not be deemed irrelevant to state the opinion of a popular English writer on the arts concerning it; first premising that it is not his opinion only, but that also of all who have studied the subject. "That he (Van Eyck) had, whether he did or did not invent it, a very superior vehicle for painting, is unquestionable; it appears to have been exclusively his own; and his pictures, after having been above four centuries painted, are almost in as bright and firm a state as when they first came off the easel. It is feared that his secret has long been lost; and that it was not the ordinary mixture of oils and colours, such probably as was used here (in England) at that time, is very evident; for none of our early oil-colour pictures can stand any competition with those of John and Hubert Van Eyck, for clearness of light and shade, brightness of hues, or state of preservation: it has all the same advantages over works of the French school painted two or three centuries later."-Sarsfield Taylor on the Fine Arts, &c., vol. i. p. 169. Again: "Van Eyck's pictures, painted 420 years ago, seem as bright and fresh as if finished last week, more especially that admirable one of the Lamb in the Apocalypse, painted in the church of St. John at Ghent; it had been carried to the Louvre, but has since been restored to its original situation." Ibid. p. 171.—Translator.

(39) B. Facius de Viris Illustribus, p. 46.—Tambroni.

(40) Albertus Mireus, in his *Chronicon Belgicum*, proves that previous to the year 1400 there existed in Belgium pictures painted in oil; and he mentions in particular one which he had seen at Louvain,

the painter of which died in 1400. Cicog. Storia di Scultura.—
Translator.

- (41) Raspe, p. 37-41.
- (42) Vita di Cennino.
- (43) See note to chap. 124.
- (44) Lanzi and Ridolfi both mention the epitaph, but neither of them says where it is to be found, nor do they mention any authority for it, other than Vasari. Rosini also quotes it (vol. ii. p. 107) as an unanswerable argument in favour of Vasari's account; and he refers to Vasari, Ridolfi, and Puccini; but he does not tell us that he has seen it, or even ascertained where it was placed.—Translator.
- (45) "But also because he was the first who gave splendour and durability to the Italian painting by mixing colours with oil."
  - (46) See Elogio del Lanzi, note 15.—Tambroni.
- (47) On a consideration of the whole of the evidence relating to the alleged invention of Van Eyck, it is scarcely possible to avoid drawing the following conclusions:—

That painting pictures in oil was undoubtedly practised long previous to the time of Van Eyck.

That the Flemings had a method of painting in oil which was unknown to the Italians, which is proved by the fact that Flemish paintings of this period were much more brilliant than those of Italian artists, and are easily distinguished by their vivid colouring from those of the latter. See Boni, *Elogio di Lanzi*, n. 15; *Rosini*, vol. ii. p. 233, vol. iii. p. 106, &c.

That this Flemish manner of painting was first introduced into Italy by way of Naples.

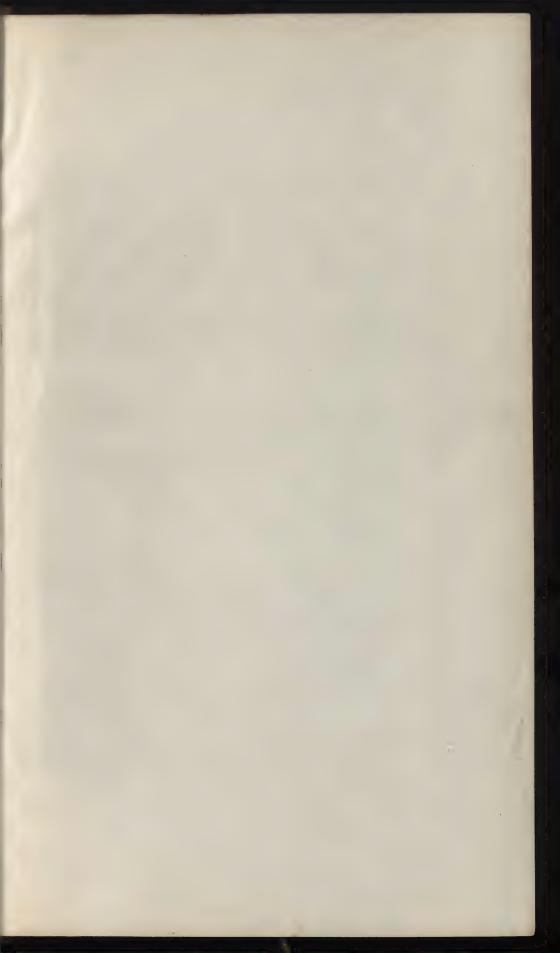
That no public document has been produced corroborative of Vasari's narrative (except as to the introduction of the Flemish manner of painting into Naples), which is somewhat extraordinary; since, if Antonello da Messina had been buried with the pomp and ceremony described by Vasari, some account of it would undoubtedly have been preserved in the records of the Venetian churches where the funeral took place, and some clue would have been found to lead to the discovery of his monument. The chronology of the period is so uncertain and irreconcilable, that no dates can be depended on but those which are strictly historical, and those actually found with the painter's name on the pictures. To prove this, it is only necessary to mention the dates on the picture of Sant' Antonio at Naples, by

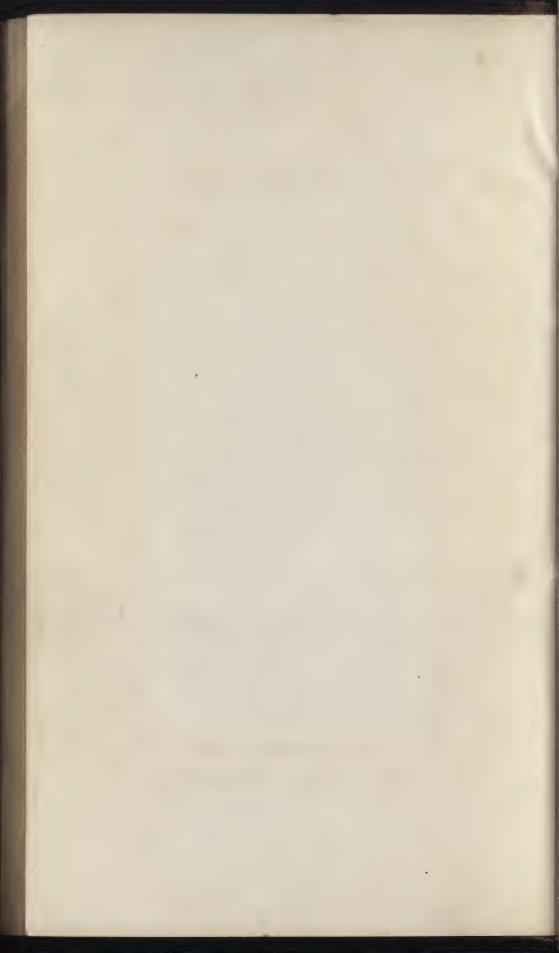
Colantonio, viz. 1371; those on the pictures of his reputed pupil, Antonello da Messina, at Venice, from 1770 to 1774; and that on the picture by Andrea del Castagno (who is said to have been taught by Antonello), now in the Florentine Gallery, 1416. The reader will find it utterly impossible to reconcile these dates with the received account of Vasari.—Translator.

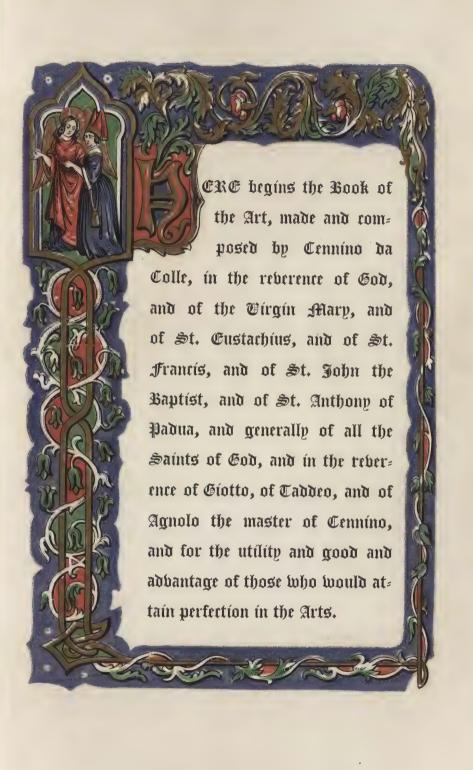
## CENNINO CENNINI'S

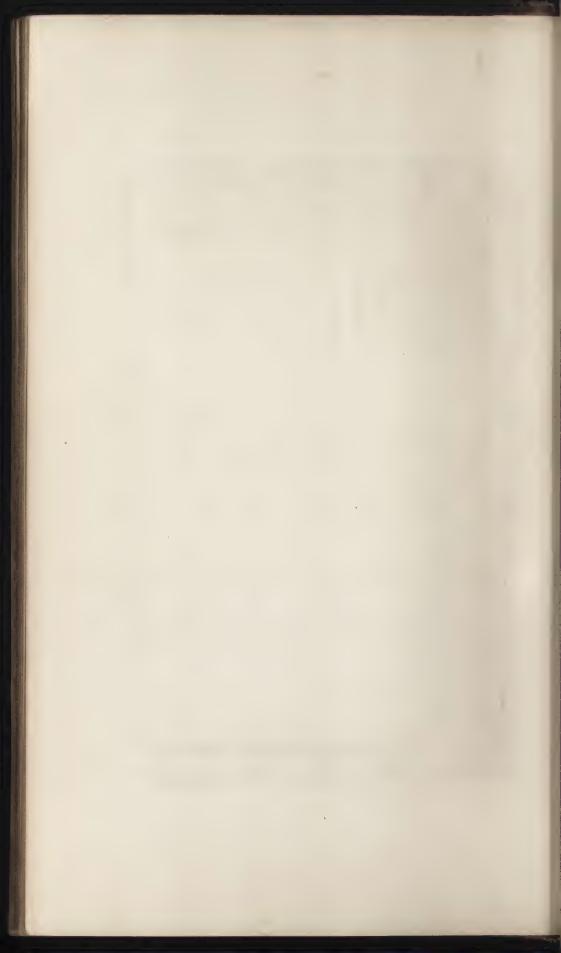
TREATISE ON PAINTING.











# TREATISE ON PAINTING.

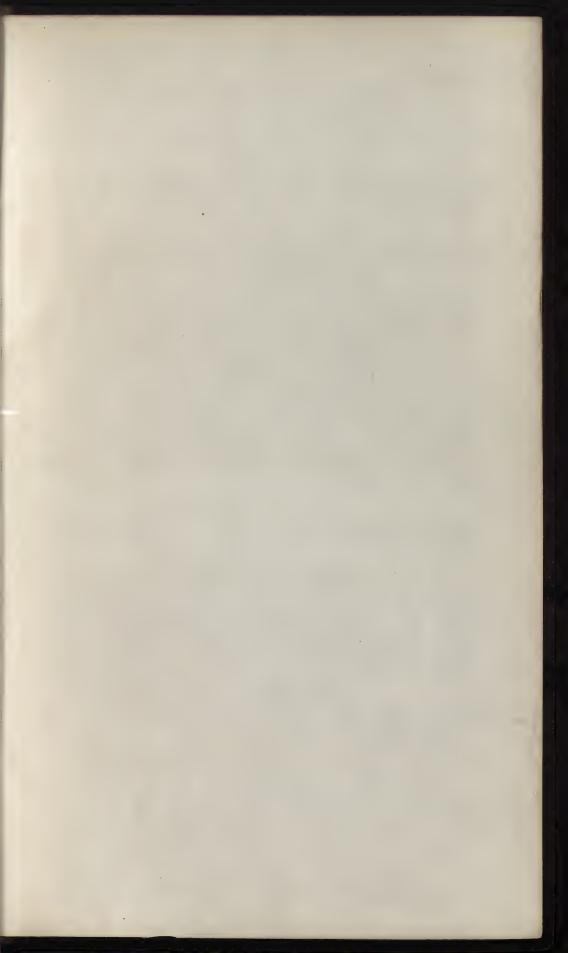
#### PART THE FIRST.

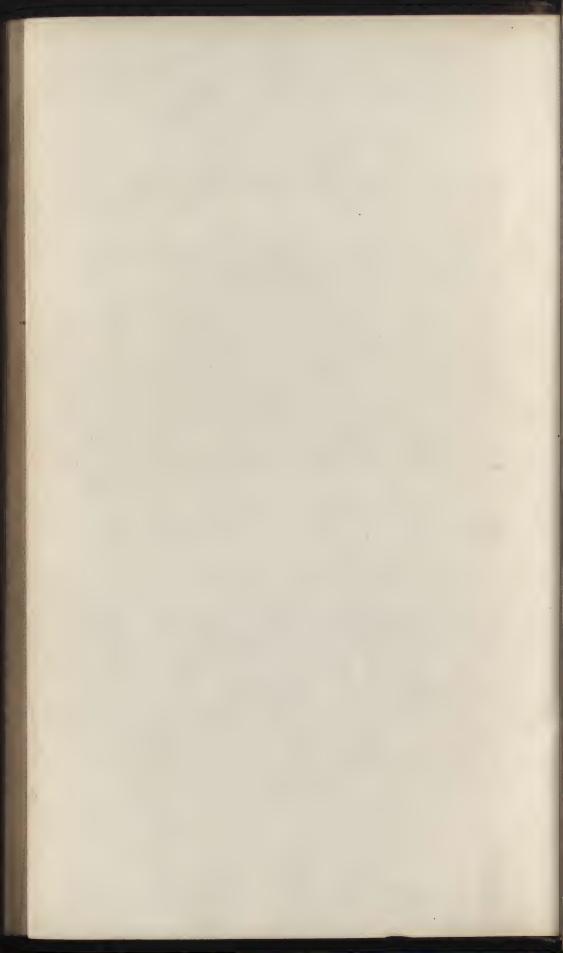
Chap. 1. Here begins the book on the art, made and composed by Cennino da Colle, in the reverence of God, and of the Virgin Mary, and of St. Eustachius, and of St. Francis, and of St. John the Baptist, and of St. Anthony of Padua, and generally of all the Saints of God, and in the reverence of Giotto, of Taddeo, and of Agnolo the master of Cennino, and for the utility and good and advantage of those who would attain perfection in the arts.

In the beginning the omnipotent God created the heaven and the earth, and, above all, animals and food; he created man and woman after his own image, endowing them with all the virtues. But Adam was tempted, and fell through the envy of Lucifer, who, with malice and subtlety, induced him to sin against the commandment of God (first Eve sinned, and then Adam); and God was displeased with Adam, and caused him and his companion to be driven by an angel out of paradise, saying to them, "Because you have disobeyed the commandment which God gave to you, by your labour and exertions shall you support yourselves." Then Adam, knowing the sin he had committed, and being nobly endowed by God as the root and father of us all, discovered, by his

wisdom and his necessities, how to live by his own manual And thus he began by digging, and Eve by spinning. Then followed many necessary arts, different each from the other, and each more scientific than the other; for they could not all be equally so. Now, the most worthy is Science; after which comes an art derived from science, and dependent on the operations of the hand, and this is called Painting, for which we must be endowed with imagination and skill, to discover things (concealed under the shade of nature), and form with the hand, and present to the sight, that which did not before appear to exist. And well does it deserve to be placed in the rank next to science, and to be crowned by Poetry: and for this reason, that the poet, by the help of science, becomes worthy, and free, and able, to compose and bind together or not at pleasure. So to the painter liberty is given to compose a figure, either upright or sitting, or half man half horse, as he pleases, according to his fancy. I have therefore undertaken to adorn this principal science with some jewels, for the benefit of all those persons who feel inclined to learn the various methods, and who worthily and without bashfulness set themselves about it; devoting to the beforementioned science what little knowledge God has given me, as an unworthy member and servant of the art of painting.

I Cennino, son of Andrea Cennini, born in the Colle di Valdelsa, was instructed in these arts for twelve years by Agnolo son of Taddeo of Florence, my master, who learned the art from Taddeo his father, the godson of Giotto, whose disciple he had been for twenty-four years. This Giotto introduced the Greek manner of painting among the Latins, and united it to the modern school, and the art became more perfect than it had ever been (1). In order to assist all those







La Madonna dels Priscol



who are desirous of acquiring this art, I shall make notes of all that was taught me by my master Agnolo (2), and which I have proved with my own hand; invoking first the high omnipotent God,—that is to say, the Father, Son, and Holy Spirit; secondly, that most delightful advocate of all sinners, the Virgin Mary, and St. Luke the Evangelist, the first Christian painter, and my advocate St. Eustachius, and generally all the saints, male and female, of paradise. Amen (3).

# Chap. 2. How some persons study the arts from nobleness of mind, and some for gain.

It is the stimulus of a noble mind which induces persons to study these arts, made pleasing to them by the love of nature. The intellect delights in invention; and it is nature alone, and the impulse of a great mind, which attracts them, without the guidance of a master. The delight they take in these studies induces them to seek a master, and they gladly dispose themselves to obey him, being in servitude, that they may carry their art to perfection. There are some who follow the arts from poverty and necessity; but those who pursue them from love of the art and true nobleness of mind are to be commended above all others.

# Chap. 3. What things are necessary in the pursuit of the arts.

Now then, you who, possessing noble minds, are lovers of this accomplishment, and who study the arts in general, adorn yourselves first with this vesture,—namely, love, reverence, obedience, and perseverance. And, according to my ability, I shall begin to put you under the direction of a master, to learn as much as in the following pages I can impart to you of what my master taught me.

### CHAP. 4. Into what parts and members the arts are divided.

I begin with drawing and colouring, which are the foundation of all the arts, and of all the labours of the hand. these two parts many things are necessary; namely, to know how to grind colours (1); to use glue (2); to fasten the cloth on the panel (3); to prime with chalk (4); to smooth the surface of the ground of the picture (5), and polish it; to make relievos in plaster (gesso) (6); to use bole; to gild (7); to burnish; to temper colours (8); to lay on flat colours (9); to powder a drawing (10); to scrape (11); to engrave gilding (12); to rule lines; to colour; to adorn and to varnish pictures (13). To paint on walls, it is necessary to wet them; to cover them with mortar (14); to embellish them; to polish them; to design, to colour in fresco and in secco; to temper the colours; adorn and retouch. And I will set forth progressively, according to the little knowledge I have acquired, the rules of the great masters before mentioned relative to these different matters.

# Chap. 5. In what manner drawings on panels should be begun.

As I have before said, you must begin by drawing. It is necessary that you should be accustomed to draw very correctly. In the first place, you must have a panel of box-wood, the size of which should be on every side the length of the hand closed, with the thumb extended (1), well smoothed and clean,—that is to say, washed with clean water, rubbed and polished with seppia (bone of the cuttle-fish), which the gold-smiths use for marking. When the above-mentioned panel is quite dry, take a sufficient quantity of bones, well pulverised

for two hours, and the finer they are ground the better they will be. Then collect the powder, and put it into dry paper; and when you would prime the panel (ingessare), take less than half the size of a bean of this bone-dust, mix it up with saliva, and before it is dry spread it with the finger over the surface of the panel. Hold the panel in the left hand; and, with the end of the fore-finger (2) of the right hand, beat upon the panel until you see that it is quite dry, and that the bone-dust is spread all over it equally.

## Chap. 6. Of other panels on which designs are executed (1).

Instead of these panels, the wood of the fig-tree, well seasoned, is sometimes used; also certain tablets used by merchants, which are made of parchment, primed with chalk, mixed with white lead and oil (2), using the bone-dust as before mentioned.

## Chap. 7. What kind of bones are proper for priming pictures.

You must now know what bones are proper. For this purpose take the bones of the ribs and wings of fowls or capons; and the older they are the better. When you find them under the table (1), put them into the fire, and when you see they are become whiter than ashes, take them out, and grind them well on a porphyry slab (which I shall hereafter mention), and keep the powder for use.

# Chap. 8. In what manner you should begin to draw with a stile, and with what light.

The bones also of the leg and shoulder of mutton are good, burnt as before directed. Then take a stile of silver,

or brass with a silver point, sufficiently fine and polished. Then, to acquire command of hand in using the stile, begin to draw with it from a copy as freely as you can, and so lightly that you can scarcely see what you have begun to do, deepening your strokes as you proceed, and going over them repeatedly, to make the shadows. Where you would make it darkest, go over it many times; and, on the contrary, make but few touches on the lights. And you must be guided by the light of the sun, and your eye, and your hand; and without these three things you can do nothing properly. Contrive always when you draw that the light be softened, and the sun strike on your left hand; and in this manner you should draw a short time every day, that you may not become tired or weary.

Chap. 9. How to arrange or accommodate yourself to the light, so as to produce the chiaro-scuro, and give proper relief to your figures.

If by accident it should happen, that when designing or drawing in chapels, or colouring in other unfavourable places, you cannot have the light on your left hand, or in your usual manner, or give relief to your figures, or design correctly, on account of the arrangement of the windows in these places, from which you are to receive the light,—you must accommodate yourself to the light on which side soever it may be, and give the proper lights and shadows. Or if the light should enter or shine full in your face, make your lights and shades accordingly; or if the light enter at a window larger than the others in the above-mentioned places, adopt always the best light, and, with due consideration, accommodate your painting to it; because, wanting this, your work will be without relief, unskilfully executed, and of little value.

Chap. 10. The manner of drawing on parchment and on paper, and how to shade with water-colours.

Let us return to our subject. You may also draw upon parchment, and paper(1) made of cotton. On parchment you may draw with the stile (2), first rubbing and spreading some of the powdered bone-dust in a dry state, or some of the varnish used by writers (3), with a hare's foot, over the parchment. When you have completed your drawing with the stile, in order to make it clearer, you may, if you please, fix the outlines and necessary touches with water (about as much as a nut-shell will hold), into which are put two drops of ink (4), and shade with a brush made of hairs cut from the tail of the minever. And thus you must blacken the water with a few drops of ink, according to the shades required. In the same manner you may shade with colours and red tints (pezzuole) (5), such as miniature-painters use; mix your colours with gum, or the white of an egg well beaten and liquefied.

#### Chap. 11. How to draw with a leaden stile.

It is possible also to draw on parchment without bone-dust with a stile of lead; that is, with two parts lead and one of tin, well beaten with a hammer.

Chap. 12. How, when drawing with a lead pencil, an error may be corrected.

You may draw on paper also with the above-mentioned leaden stile, either with or without bone-dust; and if at any time you make an error, or you wish to remove any marks made by the leaden stile, take a piece of crumb of bread, rub it over the paper, and efface whatever you please. And in

the same manner you may shade with ink, or colours, or red tints, with the before-mentioned vehicle.

# Chap. 13. How drawings with the pen should be practised.

When you have practised drawing in this manner one year, either more or less, according to the pleasure you take in it, you may sometimes draw on paper with a well-made pen. Draw lightly, leaving your lights and your half-lights and your shades gradually, and going over the latter many times with your pen (1). And if you would have your drawing very beautiful, use a little water-colour, as before directed, with a hair-pencil. Do you know what will be the consequence of this practice of drawing with the pen? It will make you expert, skilful, and capable of making original designs.

## Chap. 14. How to make a pen for the purpose of drawing.

If you would know how to make a pen of a goose-quill, take a firm quill, place it on the two fingers of the left hand, the under side of the quill upwards; take a sharp penknife, and cut away about the width of a finger from the length of the quill; then cut away the left side of the pen towards you, scrape it, make it thin towards the point, cut away the other side, and let it slope in the same degree to a point. Turn the pen over, put it on the thumb-nail of the left hand, and gently scrape and nib the point, and make it either broad or fine as you require for drawing or writing.

Chap. 15. How to draw on tinted paper.

In order to proceed gradually and begin at the very be-

ginning, and, as it were, the threshold of colouring, you must learn another method of drawing besides those of which we have previously been speaking; and this is called, drawing on tinted paper—either on parchment or paper. The term "tinted" is used because the whole surface of the paper is coloured with the same tint. The tints may be either red, purple, green, azure, grey, flesh-colour, or any colour you please; they all require the same tempering and grinding, and may all be drawn upon in the same manner. It is true that green tints are the most beautiful and most frequently used, both in shading and in the lights. I shall hereafter treat of grinding the colours, of their several natures, and of the medium (tempera) they require. I must be brief upon this subject, being desirous of instructing you in drawing and tinting paper.

# Chap. 16. How parchment or paper is tinted green, and how the tints are tempered.

To tint parchment or sheets of paper green, take about the size of half a walnut of verde terra, and half the quantity of ochre; of good white lead (biacca), half the quantity of the ochre, and about the size of a bean of bone-dust (which I have taught you previously to prepare), and half the size of a bean of vermilion. Grind all these well together on a porphyry slab, with water from a well, or spring, or river: grind them as long as you possibly can—you cannot grind them too much; and the more you grind your colours, the better will they be. Then temper these ingredients with glue (colla), of the following kind and strength: Take a piece of glue as sold by the apothecaries (not fish-glue), and put it into a pipkin to soak, in as much clean water as can be contained in two common drinking-glasses, for the space of

six hours; then put the pipkin on the fire, and skim it when it boils. When it has boiled a short time, and the glue is perfectly dissolved, strain it twice; then take a painter's vase, large enough to contain the colours you have ground, and add the glue to them till the colours flow well with the pencil. Then with a pencil of hog's bristles, rather large and soft, spread the colour immediately over the paper to be tinted with a light touch, and the pencil almost dry, till you see that the whole surface of the paper is tinted. Let it dry before you go over it again; and if you see the tints look dry, or grow too hard, it is a proof that the glue is too strong; therefore, when you have gone over it the first time, you must remedy it by adding warm water to it. When finished and quite dry, take a knife and rub it lightly over the paper, removing all the inequalities.

#### Chap. 17. How to tint parchment and to burnish it.

To draw on parchment, you must first soak it in spring or well water till it become soft. Fasten it tight with small nails over a plank, as you would stretch the parchment over a drum, and tint it as before directed. Should it happen that the parchment or paper is not smooth enough for the purpose, put it on a plank of walnut-tree wood, or on an even and well-polished stone. Then put a very clean sheet of paper upon that which you have tinted; and with the stone with which you burnish gold, burnish it firmly with the hand, and by this means you will make it very soft and smooth. True it is that some persons like to burnish on the tinted card itself, so that the burnishing-stone should touch its surface, and give it a little lustre: do which you please, but the first mode is the best. The reason is, that the lustre given to the tinted paper, by rubbing it with the burnishing-stone,

takes away the lustre of the stile in drawing; and besides, the water-colour, when applied, does not look as clear as when the first process is used. Sit nihil hominibus (1); do as you please.

#### Chap. 18. How to tint paper of a morello or purple colour.

Now learn how to make these tints. To tint paper morello or purple colour, take, for the number of sheets I have mentioned above (1), half an ounce of white lead and the size of a bean of lapis amatisto (2), and grind them as well together as you can; they cannot be spoilt by too much grinding, but, on the contrary, will be improved. Temper the colour as before.

#### Chap. 19. How to tint paper with indigo.

For the above-mentioned number of sheets take half an ounce of white lead (biacca), and the size of two beans of *Indaco maccabeo* (1), and grind them well together; you cannot spoil them by too much grinding. Temper, and use in the same manner as before.

#### Chap. 20. To tint paper a peach-colour.

If you would tint your paper of a peach-colour, for the same number of sheets take half an ounce of verde terra, the size of a bean of white lead, and the size of a bean of light sinopia. Grind them in the usual manner, and temper with your size.

#### Chap. 21. To tint paper of a flesh-colour.

To make a good flesh-coloured tint, take for the same number of sheets of paper half an ounce of white-lead, and less than the size of a bean of vermilion: grind and mix well together. Temper in the usual manner.

#### Chap. 22. To make grey tints on paper.

Grey tints are made in this manner. Take a quarter (1) of white lead, the size of a bean of light ochre, less than half the size of a bean of black; grind these well together in the usual manner. Temper as I have before directed, putting always to each the size of a bean at least of burnt bones. And these directions are sufficient to enable you to proportion the tints properly.

## Chap. 23. In what manner you may make a good drawing on transparent paper (carta lucida).

You must know there is still another kind of paper, called transparent, which may be very useful to you in copying a head, or a figure, or a half-length figure, from the work of a great master. If you wish to have a correct outline, or if you see any picture of which you wish to take a copy for yourself, put the transparent paper over the figure or design, fastening it lightly at each corner with a piece of red or green wax. The figure or design will be immediately visible through the transparent paper, so that you can see it clearly. Then take either a pen with a fine nib, or a small hair-pencil, and with ink trace the outlines and extremities of the design under it, touching in lightly every shade that you can see and draw. Then taking away the paper, you may touch the lights and relievos in the manner I have before described.

#### Chap. 24. The first mode of making transparent paper.

If you cannot find any of this transparent paper ready made, make it in the following manner. Take a skin of parchment, give it to a parchment-maker, and let him scrape it very thin and evenly. It is of itself transparent. If you would have it more clear, take linseed-oil, very clear and fine, and rub it over with a piece of cotton dipped in this oil; let it dry for the space of many days, and it will be perfect and good.

## Chap. 25. The second mode of making transparent paper, with glue.

If you would prepare this transparent paper in another manner, provide a slab of marble or porphyry. Then take fish-glue and pieces of glue sold by the apothecaries: put them to soften in clean water; and to six pieces put a porringer-full of clean water. Then make it boil; and when boiled, strain it two or three times. Then take some of this dissolved and strained glue, and when cool, with a brush (as in tinting paper) pass all over the clean slab: should be first greased with olive oil; and when the glue upon the slab is dry, take the point of a knife and begin to loosen the glue from the slab with your hand: take off as much as you can of this kind of skin or paper. With great care you may detach this glue safely from the stone, like a sheet of paper. Or if you prefer it, before you detach this skin of glue from the stone, take linseed oil, boiled in the manner I shall direct when speaking of mordants, and with a soft pencil go once over it: let it dry for two or three days, and it will be very transparent.

#### Chap. 26. How paper may be made transparent.

Paper may also be made transparent. The paper must be thin, even, and very white; oil it with linseed-oil, as before directed. It will be transparent, and very good. Chap. 27. Shewing how you should endeavour to draw and instruct yourself in design as much as you can.

It is now requisite that you should copy from models, in order to attain the highest branches of the science. have made tinted cards. It is necessary for you to adopt this mode. Having practised drawing a sufficient time on tablets, as I have before directed, always study and delight in drawing the best subjects which offer from the works of the great masters. If there are many good masters in the place where you live, so much the better for you. But I advise you always to select the best and most celebrated; and if you daily imitate his manner, it is scarcely possible but that you will acquire it; for if you copy to-day from this master and to-morrow from that, you will not acquire the manner of either; and as the different style of each master unsettles your mind, your own manner will become fantastic. will study this manner to-day and that to-morrow, you must of necessity copy neither perfectly; but if you continually adopt the manner of one master, your intellect must be very dull indeed if you do not find something to nourish it. And it will happen that if nature has bestowed on you any invention, you will acquire a manner of your own, which cannot be other than good, because your hand and your understanding being always accustomed to gather the flowers, will always avoid the thorns (1).

Chap. 28. How you should draw continually from nature, as well as from the masters.

Remember that the most perfect guide that you can have and the best direction is to draw from nature: it is the best of all possible examples, and with a bold heart you may always trust to it, especially when you begin to have some knowledge of design. And continuing always and without fail to draw something every day, how little soever it may be, you will certainly attain excellence.

Chap. 29. How you should regulate your manner of living so as to preserve decorum, and keep your hand in proper condition, and what company you should frequent; and how you should select and draw a figure in relief.

Your manner of living should be always regulated as if you were studying theology, philosophy, or any other science; that is to say, eating and drinking temperately—at the most twice a day, using light and good food, and but little wine; keeping in good condition, and restraining your hand, preserving it from fatigue, throwing stones or iron bars for instance, and many other things which are injurious to the hand, causing it to shake. There is still another cause, the occurrence of which may render your hand so unsteady that it will oscillate and tremble more than leaves shaken by the wind, and this is, frequenting too much the company of ladies.-Let us return from our digression. Make a pocket of sheets of paper glued together, or of light wood, fit to hold any picture or paper, and this will hold your drawings, and also serve for a desk to draw upon. Then always retire alone (1), or with companions who are doing as you do, and who will not hinder your work; and the more intellectual these companions are, the better will it be for you. Whether it be in churches or chapels that you begin to draw, consider first what space, or history, or figures, you wish to sketch, and remark where the shades, middle tints, and lights fall; and I must tell you here to shade with ink and water, to leave the ground of the panel for the middle tints, and to use white for the lights.

Chap. 30. In what manner you should begin to draw on paper with charcoal, and proportion the figure, and fix your drawing with a silver stile.

Procure some fine charcoal, cut to a point, like a pen or a stile, and the first measure that you take in drawing let it be one of the three parts into which the face is divided, namely, the head, the face, and the chin (1), with the mouth. And, taking one of these three parts for a guide, proportion the whole figure by it, endeavouring to understand and be governed by these measures; and this is done, because the historical painting, or the figure you copy, may be of large dimensions, and you may be unable to reach with the hand to measure it. You must make use of your understanding, and in this way truth will be your conductor. If you have not proportioned your drawing exactly by the first touches, take a feather, either of a hen or a goose, and, with the feather-part of it, rub and clean away the charcoal from what you have drawn, and the design will be effaced. Begin again from that part the proportions of which appear to agree with the original; and when you see that it is correct, take the silver stile, and retrace the outlines and extremities of your design, and the depths of shade. When you have done this, with the feather-part of the pen remove the charcoal, and your drawing will be fixed by the stile.

Chap. 31. How to draw and shade on tinted paper in watercolours, and heighten the lights with white.

When you have sufficiently practised shading, take a hairpencil without a point (1), and with water and ink, in a small vase, wash over the principal shades, and proceed to deepen them properly. If you find your tint too light, and

if your pencil become as it were almost dry, yet be not in haste; you will learn to shade by degrees by always returning with your pencil to the darkest parts. Do you know what will happen from this proceeding? If the water have but little colour, and you take pleasure in shading, and do not hurry yourself, your shades will at last appear soft, like smoke. Always remember to keep the pencil flat. When you can shade well, take a drop or two of ink, add it to the water, and stir it well; and then in the same manner fill in the darker shades to their utmost depths - always remembering, while shading, your three divisions, the first consists of the shades, the second of the colour of the ground, and the third of the lights. When you have done this, take a little white lead, well triturated with gum-arabic (hereafter I shall treat of the manner in which this gum should be tempered and dissolved (2), and I shall also treat of all kinds of vehicles); a very little white will be sufficient. Put some clean water in a little vase; dip your pencil into it, and rub it on the prepared white lead, particularly if it be of good body; then hold the paint by your thumb and finger, and, squeezing the pencil, discharge the colour from it, so that you leave it almost dry. Begin by washing the pencil flat over those places where there ought to be lights and relievos, and go many times over them, but with discretion; then, for the extreme relievos and high lights, take a pointed pencil, and touch them with the point of the pencil dipped in white. Take a small pencil, and with ink clear up the extreme shades and outlines, noses, eyes, hair, and beard.

Chap. 32. How you may put on the lights with water and white lead, as well as shade with water and ink.

I advise also, when you have had more practice, that you

endeavour to lay on the lights with water-colour as you did ink with water. Take white lead ground with water, and temper it with the yolk of an egg, and spread it on your drawing as you did the ink and water; but it is more difficult, and requires practice. Both methods are called drawing on tinted paper, and they will lead to the art of colouring. Practise what you have been taught as frequently as you can; attend closely and with great diligence, delight, and pleasure, to these studies.

## Chap. 33. In what manner good and fine charcoal crayons may be made.

Before we proceed further, I will teach you how to make Take some slips of willow, dry and cravons of charcoal. smooth, and cut them into pieces as long as the palm of the hand, or the little finger; then divide them like matches, and fasten them together like a bundle of matches; but first polish and sharpen them on each side as if they were tin. Then, laying them side by side, bind them altogether in three places, that is, by the middle and by each end, with a copper or iron wire; then take a new pipkin, and fill the pipkin with them; put on an earthen cover, and lute it round with chalk or clay, so that no air can enter; and put the pipkin into a cool oven, that is, into one from which the bread has just been removed, and let it remain till morning; then look whether the crayons are well burnt and black. If they are not black enough, let them remain till they are so. Then to ascertain whether they are properly made, you should take one of the crayons, and draw with it, either on paper, or tinted paper, or on a panel. If the crayon works freely, it will do; if it be too much baked, it will not hold on the paper, but will split to pieces. I will tell you another way of making these crayons. Take a small baking-pan, covered as above mentioned; put it at night on the hot hearth, and cover it well with ashes, and go to bed. In the morning the crayons will be done. And in the same manner you may make small or large crayons as you please; and there are no better crayons in the world.

Chap. 34. Of a stone for drawing, which is of the nature of charcoal.

I have found that a certain black stone brought from Piedmont is good for drawing; sharpen it with a knife, it is soft, and very black, and it will be as good as charcoal. Draw with it what you please (1).

#### PART THE SECOND.

CHAP. 35. Of the preparation of the colours.

In studying the arts progressively, we come next to the grinding of the colours. You must know that some colours are very fine, some coarse, and some impure; that some require but little, others much grinding; that some demand one vehicle, some another; that they differ in colour and in the manner of tempering and grinding them.

Chap. 36. What are natural colours (pigments), and how to grind black.

You must know that there are seven natural colours, namely, four which are of the nature of earths, as black, red, yellow, and green; three are natural colours, but require the assistance of art, as white, ultramarine, or della magna, and Naples yellow. We will not proceed further, but return to the black pigment. To grind it properly, procure a slab of porphyry, which is strong and firm. There are many kinds of stone for grinding colours, as porphyry, serpentine, and marble. The serpentine is a soft stone, and is not good (1); marble is worse, that is, softer; porphyry is the best of all; and if you procure a slab very well polished, it will be better than one with less polish. It should be about half a braccio (2) square. Take another stone, also of porphyry, smooth on one side, and raised on the other, in the shape of a porringer, and half the height of one, of such a form

that the hand may hold and guide it at pleasure (3). Then take some of the black (or of any other colour), about the size of a walnut, and put it on the slab, and with that stone which you hold in your hand break the pigment into small pieces. Put some clean water, either from a river, a fountain, or a well, to the colour, and grind it well for half an hour, or an hour, or as long as you please; but know, that if you were to grind it for a year, so much the blacker and better would be the colour. Then take a flat piece of wood, part of which is pared thin like the blade of a knife (4), and with this blade collect the colour neatly; keep it liquid, and not too dry, that it may flow well on the stone, and be thoroughly ground; then collect it carefully. Put it then into a small vase, and pour water on it till the vase is full; and in this manner keep it always soft, and well covered from the dust, and from all other dirt, that is, in a little box adapted to hold vessels of liquor (5).

### Chap. 37. How to make several kinds of black.

Remember that there are several black pigments, one of which is a soft black stone, and the colour is opaque. I must inform you that transparent colours are better than those which have much body, except that in laying on gold, bole, or verde terra, when you have pictures to gild, the richer the colour is, the brighter will be the gold. Let us leave this subject. Another black is made of the tendrils or young shoots of the vine (1), which are to be burnt, and when burnt, thrown into water, and quenched, and then ground like other black pigments. This colour is very black and transparent (magro), and it is one of the most perfect pigments we have. Another black is made of the skins of almonds, or the kernels of peaches; this also makes a perfect and fine black. Another

black is made in this manner: take a lamp full of linseedoil, light the lamp, and put it under a clean baking-dish, so
that the flame of the lamp shall be about the distance of two
or three fingers from the dish, and the smoke which comes
from the flame shall strike against the dish; collect the smoke
together; wait a little; take the baking-dish, and sweep off
the smoke (which is the pigment) into paper, or into some
vessel; it does not require grinding, because it is already a
very fine powder. Thus you may continue to fill the lamp
with the oil, put it under the dish, and make in this manner
as much colour as you require (2).

# Chap. 38. Of the nature of a red pigment called sinopia (1).

There is a natural red pigment, which is called sinopia or porphyry. The colour is naturally transparent and drying. It bears grinding well, and the more it is ground the better it is. It is good for painting either on pictures or walls, in fresco or in secco. These terms, "fresco and secco," shall be explained to you when I treat of painting on walls. And we have said enough about the first kind of red.

# Chap. 39. How to make a red pigment called cinabrese, used for the flesh-colours on walls, and its properties (1).

There is a red colour called light cinabrese, and I do not know that this colour is used any where but in Florence; it is a perfect flesh-colour, either for painting on walls or in fresco. This colour is made of the finest and lightest sinopia; it is mixed and ground with bianco sangiovanni, as it is called at Florence (a white made of very white and pure lime). And when you have well ground together these two colours, in the proportion of two-parts of cinabrese to one of

white, make them into lumps the size of half a walnut, and let them dry, and keep them for use. This colour is very fine for faces, hands, and naked figures on walls, as I have before said; and sometimes you may make with it beautiful draperies, which on walls look like cinnabar.

# Chap. 40. Of the properties of a red pigment called cinnabar (vermilion).

There is a red colour called cinnabar; and this colour is made by a chemical process (alchemy), performed in an alembic, in a manner which would take too much time to explain. And if you would labour at it yourself, you may find many recipes, especially among the friars (1). But I advise you, that you may not lose your time in making experiments, to purchase what you want at the apothecaries'; and I will teach you how to buy it, and to distinguish good cinnabar. Always purchase whole cinnabar, unbroken and unground; the reason for this is, because it is often adulterated with minium (red lead), and with pounded brick-dust. Examine the whole lump of cinnabar, and that which is convex on the top and covered with needle-shaped filaments (2) is the best. Put this then upon the slab above mentioned, grinding it with clean water as much as you can - if you were to grind it for twenty years, it would be but the better and more perfect. This pigment requires to be tempered according to the situation in which it is to be used; but of this I shall hereafter speak, and shall give you proper directions in another part of this work. remember that it is not durable when exposed to the air; it is more lasting on pictures than on walls, because by long exposure to the air it becomes black when applied to walls (3).

Chap. 41. Of the properties of a red pigment called minium (1) (red lead).

There is a red pigment called minium (red lead), which is also a chemical production. This pigment is only proper to be used in pictures; for if it be used on walls, on exposure to the air it suddenly becomes black, and loses its colour.

Chap. 42. Of the properties of a red colour called amatisto, or amatito.

There is a red colour called amatito. This is a natural colour, and is produced from a very hard and firm stone. It is so hard and firm that tools are made of it to burnish gold on pictures. It is very dark and pure, and as good as a diamond. The pure stone is of a maroon or purple colour, and is crystallised like cinnabar. Break this stone in a bronze mortar, because, if you were to break it upon the porphyry slab, you might split it; and when you have broken it, put a small quantity on the slab, and grind it well with clean water; and the more you grind it the better it will be, and the more perfect the colour. This pigment is proper for walls and fresco; and it makes a colour such as cardinals wear, or a purple or lake-colour. It cannot be used in any other way, or in distemper (1).

Chap. 43. Of the nature of a red colour called dragon's blood (1).

There is a red colour called dragon's blood. This colour is sometimes used in miniature-painting on paper. Let it alone, however, and be not too anxious for it; it will never do you much credit.

Chap. 44. Of the nature of a red pigment called lake.

There is a red colour called lake, which is an artificial

pigment. There are many recipes for it; but I advise you, out of regard to those skilled in making it, to purchase the colour ready made: but be careful to distinguish the best, for there are many sorts of it. If the lake be made of the shreds of cloth, or stuffs, it is very beautiful to the eye; but beware of this, because it always retains some body by reason of the alum which it contains, is not durable, either tempered or not, and rapidly loses its colour. Be careful to shun this kind. But procure the lake which is obtained from gum, and is dry and transparent, and granulous like earth; its colour is blood-red (1). This cannot be otherwise than good and perfect. Take this and grind it on the stone with clean water; it is good in pictures. It is also used on walls in distemper, but the air is destructive to it. Some there are who grind it in urine, but it is unpleasant, and soon becomes offensive.

## Chap. 45. Of the nature of a yellow colour which is called ochre (1).

There is a natural yellow pigment called ochre. This pigment is found in a mountainous country, where there are veins of it like veins of sulphur; and in these veins are found sinopia, verde terra, and other pigments. I found this pigment one day when my father, Andrea Cennini, took me to the territory of the Colle di Valdelsa, near the confines of Casole, on the outskirts of the wood of the comune of Colle, above a villa called Dometara. We came to a small valley, and to a rustic grotto, where, digging with a mattock, I saw veins of many colours, namely, of ochre, light and dark sinopia, blue, and white; and it seemed to me the greatest miracle in the world that white should come from veins in the earth; but remember that I made a trial of this white, and found it unctuous, and unfit for the colouring of flesh. There were

also in this place veins of a black colour; and these colours were as visible on the earth here as the features on the face of a man or woman.

But let us return to the pigment ochre. I went about seeking every where with a knife for the veins of this colour, and I assure you that I never met with more beautiful or perfect ochre. I agree that it is not so bright as Naples yellow—it is a little darker; but for hair and drapery (as I shall hereafter inform you) you will never find any colour preferable to this ochre. It is of two kinds, light and dark. Each colour requires to be ground in the same manner with clean water; and grind them well—they will be all the better for it. You must know that this ochre is a common colour, very useful in fresco-painting, as well as in other kinds of painting. It is used, as I shall tell you hereafter, in painting flesh, in drapery, in colouring landscapes, buildings, horses, and in many other things. This colour is in its nature unctuous.

## Chap. 46. Of the nature of a yellow pigment called giallorino (Naples yellow).

There is a yellow pigment called giallorino, which is made artificially, and is very hard. It is as heavy as a stone, and hard to break. This colour is used in fresco, and is very durable on walls, and in pictures in distemper. It must be ground, like the other colours, with clean water. It is difficult to grind; and before you grind it, it is better to break it to pieces in a bronze mortar, as I advised you to do with regard to the *lapis amatisto*. And when you work with it, you will find that it is not a very brilliant yellow, and that without a mixture of some other colour, as I shall hereafter mention, it never makes bright greens, or the proper colour for herbage.

Nevertheless, I give you to understand that this is a real stone, produced in mountainous volcanic districts; therefore I say it is an artificial pigment, but not a chemical preparation (1).

CHAP. 47. Of the nature of a pigment called orpiment.

There is a yellow pigment called orpiment. This is an artificial pigment, and a chemical preparation (1), and is very poisonous. It is a very fine yellow, like gold in colour. It is not good for walls, or in fresco, or in distemper, because by exposure to the air it becomes black. It is proper for heraldic painting. This colour, mixed with indigo, makes a green the colour of grass and herbage. It can only be tempered with glue. Physicians sometimes prescribe this pigment in some diseases which are brought before them. It is the most difficult colour to grind of any used in our art; therefore, when you are going to grind it, put the quantity you want on the stone, and with that stone (that is, the muller) which you hold in your hand gently press it between the stones, mixing with it a little broken glass, because the powdered glass, by its roughness, assists in grinding the orpiment. When you have broken it to pieces, put clean water to it and grind it as much as you can, - and if you were to grind it for ten years, so much the better would it be. Beware of letting it touch your mouth, lest you should poison yourself (2).

Chap. 48. Of the nature of a yellow pigment called risalgallo (realgar, or red orpinent) (1).

There is a yellow colour called risalgallo (realgar, or red orpiment): this colour is also poisonous. It is rarely used by us, and only on pictures. It cannot be mixed with any other colour. If you wish to grind it, do it as I have before

directed: it must also be ground with water; and guard your person from contact with it.

Chap. 49. Of the nature of a yellow pigment called zafferano (saffron).

There is a yellow colour made from a spice (spezia) called zafferano (saffron). You must put it into a piece of linen, upon a hot stone or brick; procure about half a glassful of strong lye; pour it upon the saffron, and grind it on the stone. It will produce a beautiful colour for dyeing cloth or linen. It is good on paper. Do not expose it to the air, for it soon loses its colour. And if you would make the most perfect colour possible for grass, take a little verderame (verdigris) and some zafferano, in the proportion of one part saffron to two of verderame, and the most beautiful green will result. Temper it with size, as I have before directed.

# Chap. 50. Of the nature of a yellow pigment called arzica(1).

There is a yellow pigment called arzica, which is a chemical preparation, and not much used. It is chiefly used by miniature-painters, and more by those in the neighbourhood of Florence than at any other place. It is a very fine colour, not durable when exposed to the air, is not proper for walls, but is good on pictures; mixed with a little azzurro della magna (2) and giallorino, it makes a beautiful green. It must be ground, like all the other bright colours, with clean water.

## Chap. 51. Of the nature of a green pigment called verde terra.

There is a natural green pigment which is an earth, and is called verde terra. This colour has many properties. First,

it is a very unctuous pigment, and proper to use in faces, draperies, buildings, in fresco and secco, on walls, on pictures, and wherever you please (1). Grind it, as I have told you to grind the other colours, with clean water; and the more you grind it, the better it is. And if you temper it in the same manner as I shall direct you to temper bole, you may in the same way lay on gold upon verde terra. And know that the ancients never adopted any other manner of gilding than this with verde terra (2).

## Chap. 52. Of the nature of a green called verde azzurro (blue or cobalt green) (1).

There is a green which is partly natural, but requires artificial preparation. It is made of azzurro della magna (German blue). This is called verde azzurro (blue green). Do not trouble yourself as to how it is made, but buy it ready made. This colour is good in secco, tempered with yolk of egg, to paint trees and grass, and also for grounds. Put on the light with giallorino (Naples yellow). This colour is of itself coarse and gritty. In order to preserve the colour, grind it very gently with the hand, because if it be too much ground, it will lose its colour, and be like ashes. It must be ground with clean water; and when you have ground it, pour clean water into the vase on the colour, and stir both well together; then let it rest for an hour, or two, or three; pour away the water, and the green will be most beautiful. Wash it in this manner two or three times, and it will be still finer.

# Chap. 53. How to make a green with orpiment and indigo.

There is a colour made by mixing two parts of orpiment with one of indigo, and grinding them well together with

clean water. This colour is good for heraldic painting; and it is also used for painting rooms in secco. It can only be used with glue.

Chap. 54. How to make a green with verde azzurro (bluegreen) and giallorino (Naples yellow).

There is a green colour made with verde azzurro and giallorino. This is proper for walls and pictures, and is tempered with the yolk of an egg. If you would make the colour more beautiful, add to it a little arzica; and if you would make it more beautiful still, add to it some azzurro della magna (German blue); pound some wild plums, and make verjuice, and of this verjuice put four or six drops to the blue. It makes a beautiful green; but it fades when exposed to the air, and in time the verjuice entirely disappears.

Chap. 55. How to make a green with azzurro oltre marino (ultramarine blue).

A green colour may be made of ultramarine and orpiment. It requires some skill to mix these colours. First take the orpiment, and then add the blue (1). If you would have it incline to a light green, let the orpiment prevail; if to a dark green, let the blue prevail. This colour is proper for pictures, but not for walls. Temper it with size.

Chap. 56. Of the nature of a green called verderame (verdigris).

There is a green pigment called verderame (verdigris). It is sufficiently green of itself, and is a chemical preparation, made of copper and vinegar. This colour is good on pictures, tempered with glue. Be careful never to mix it with biacca (white lead), because these two colours are mortal enemies.

Grind it with vinegar, which it is its nature to retain; and it makes a grass-green, most perfect and beautiful to the eye, but not durable. It is good on parchment, on paper, or on vellum, tempered with the yolk of an egg (1).

Chap. 57. How to make a green with verde terra and biacca (white lead), or with bianco sangiovanni and verde terra.

There is a green the colour of sage, which is made by mixing biacca and terra verde, tempered with the yolk of an egg. This is to be used on pictures; when painting on walls or in fresco, mix the verde terra with bianco sangiovanni made of purified white lime.

#### Chap. 58. Of the nature of bianco sangiovanni.

There is a natural white pigment which, however, requires some preparation. It is prepared in this manner (1). Take very white slacked lime; pulverise it, and put it into a little tub for the space of eight days, changing the water every day, and mixing the lime and water well together in order to extract from it all unctuous properties. Then make it into small cakes, put them upon the roof of the house in the sun, and the older these cakes are, the whiter they become. If you wish to hasten the process, and have the white very good, when the cakes are dry, grind them on your slab with water, and then make them again into cakes, and dry them as before. Do this twice, and you will see how perfectly white they will become. This white must be ground thoroughly with water. It is good for working in fresco, that is, on walls, without tempera; and without this colour you can do nothing,-I mean, you cannot paint flesh, or make tints of the other colours which are necessary in painting on walls, namely, in fresco; and it never requires any tempera.

#### Chap. 59. Of the nature of biacca (white lead).

There is a white pigment prepared chemically from lead, which is called biacca. This white is strong and brilliant, and is in cakes of the shape of drinking-glasses (1). To know the best sort, always select that kind the top of which is in the form of a cup. The more this colour is ground, the better it is; it is proper for pictures, and is sometimes used on walls; but beware of it nevertheless, for in time it becomes black (2). Grind it with water; it will bear any tempera, and will enable you to make your colours lighter in pictures, in the same manner as the other white does on walls.

# Chap. 60. Of the nature of azzurro della magna (German blue, or cobalt) (1).

There is a natural pigment of a blue colour, which is found in and around veins of silver. A great quantity is produced in Germany, and also in Sienna. If you would have it very good, you must grind it. When you are going to lay on grounds with this blue, you must grind a little at a time, with water, carefully; for it is very difficult to grind. If you would use it for draperies, or to make greens, as I have before said, you must grind it more. This pigment is good on walls, in secco, and on pictures; it may be tempered with yolk of egg, glue, or whatever you please.

## Chap. 61. To imitate with other colours azzurro della magna (German blue).

To make a light blue, like the colour of the sky, take indaco baccadeo (indigo) (1), and grind it very fine, with water; and for pictures, mix with it a little biacca; and for

walls, a little bianco sangiovanni. It becomes a sky-blue; and must be tempered with glue.

Chap. 62. Of the nature of azzurro oltre marino (ultramarine blue), and how it is prepared.

Ultramarine blue is a colour more noble, beautiful, and perfect, than any other colour; and its good qualities exceed any thing we can say in its favour. On account of its great excellence, I shall speak of it at length, and give you full directions for preparing it (1); and you must pay great attention to them, for they will bring you honour, and be of much service to you. And with this colour and gold (which are the great ornaments of our art) you may produce the finest effects (2). First take some lapis lazzari (3); and if you would know how to distinguish the best stones, take those which contain most of the blue colour, for there is mixed with it what is little better than ashes. That which contains least of these ashes is the best. But be careful that you do not mistake for it azzurro della magna, which is as beautiful to the eye as enamel. Pound it in a covered bronze mortar, that the powder may not fly away; then put it on your slab of porphyry, and grind it without water; afterwards take a covered strainer like that used by the apothecaries for sifting spices, and pound again as much as is required. But bear in mind, that although the ultramarine becomes finer the longer it is ground, yet the colour is neither so rich nor so deep; and that the finer sort is fit for miniature-painters, and for draperies inclining to white. When the powder is prepared, procure from the apothecary's six ounces of resin of the pine, three ounces of glue (mastrice), and three ounces of new wax, to each pound of lapis lazzari. Put all these ingredients into a new pipkin, and melt them together. Then strain them through a piece of linen into a glazed basin, add to the mixture a pound of the powder of lapis lazzari, mix it all well together into a paste. And that you may be able to handle the paste, keep your hands always well anointed with linseed-oil. This paste must be kept at least three days and three nights, and must be stirred a little every day; and remember that you may keep it for fifteen days or a month, or as long as you please. When you would extract the azure from the paste, proceed thus. Prepare two sticks, with handles neither too thick nor too thin, about a foot long; let them be well rounded at the end, and polished. Then, your paste, being in the glazed basin into which you first put it, add to it a porringer full of lye, moderately warm; and with these two sticks, one in each hand, turn and squeeze, and mix the paste thoroughly, exactly in the manner that you would knead bread. When you see that the lye is perfectly blue, pour it out of the glazed basin; take the same quantity of fresh lye, add it to the paste, and stir with the sticks, as before. When the lye is become very blue, pour it into another basin, and add more lye, as before. When this lye is very blue, pour it into another glazed basin; and continue to do so as long as the lve is tinged with colour. Then throw it away, it is good for nothing. Range all the basins before you on a table in the order in which they were drawn off, that is to say, the first, second, third, and fourth; then beginning at the first, with your hand stir up the azure, which by its weight will have sunk to the bottom, and then you will know the depth of the azure colour. Decide how many shades of the azure you will have, whether three, or four, or six, or what number you please, always remembering that the first-drawn extracts are the best, as the first porringer is better than the second.

And if you have eighteen basins of extract, and you wish to make three shades of azure, take the contents of six basins and mix them together; that will be one shade. Proceed in the same manner with the others. But remember that if you have good lapis lazzari, the azure from the first two extracts is worth eight ducats the ounce. The last two extracts are worse than ashes (4). However, your eye must be accustomed not to spoil the good azure by mixing with the bad; and each day remove the lye, that the azure may dry. When it is quite dry, put it into skins, bladders, or purses, as may be most convenient. But if the lapis lazzari be not very good, or after having ground it, if the colour be not deep enough, I will tell you how to give it a little colour. Take a little pounded kermes lake (grana) (5), and a little verzino (6), boil them together, but let the verzino be grated or scraped with glass; and then boil them together with lye or a little roche alum. And when they boil, and you see that the colour is a perfect red, before you have poured the azure from the porringer (but which must be quite dry, and free from lye) add to it a little of this lake and verzino. and with your finger mix them all well together; and let them remain to dry without sun, or fire, or wind. dry, put it into a skin or purse; it is good and perfect. keep this secret to yourself; for it is a great acquirement to know how to make it well. You must know also that it is rather the acquirement of youth than that of men, because they remain continually in the house, and their hands are more delicate. Beware especially of preparing it in old age. When you would use this azure, take as much as you want; and if you are going to work on white dresses, grind a little on your stone. And if you want it for laying grounds, grind it a little on the stone (which is to be previously well washed

and clean) with very clean water. And if the azure should be dirty, take a little lye or clean water, and put it into a vase, and stir them well together for a short time, when the blue will be quite clean. I shall not treat of its tempera, because I shall hereafter describe all the temperas proper for every colour to be used on pictures, on walls, on iron, on paper, on stone, or on glass.

## Chap. 63. Shewing that it is necessary to know how to make brushes or pencils.

As I have told you the names of all the colours individually which are used with pencils, and how they are ground (these colours must always be kept in a box well covered, and under water), I will now tell you when to use tempera, and when not. But you must first know how to make use of them, and this you cannot do without brushes. Therefore we will leave these subjects for the present, while I teach you how to make the brushes, which you are to do in the following manner.

#### Chap. 64. How pencils of minever are made.

In painting two kinds of pencils are necessary, namely, pencils of minever and of hog's bristles. Those of minever are made in the following manner: — Take the tails of the minever (for no other are good), and these tails must be baked, and not raw (1). The furriers will tell you so. From the tip of such a tail draw the longest hairs, and collect the tips of many tails, so that from six or eight points you may make a soft pencil fit for laying gold on pictures, that is to say, to wet it with in the manner that I shall direct you hereafter. Let us return now to the tail, which you are to take in your hand, and select the straightest and firmest hairs from

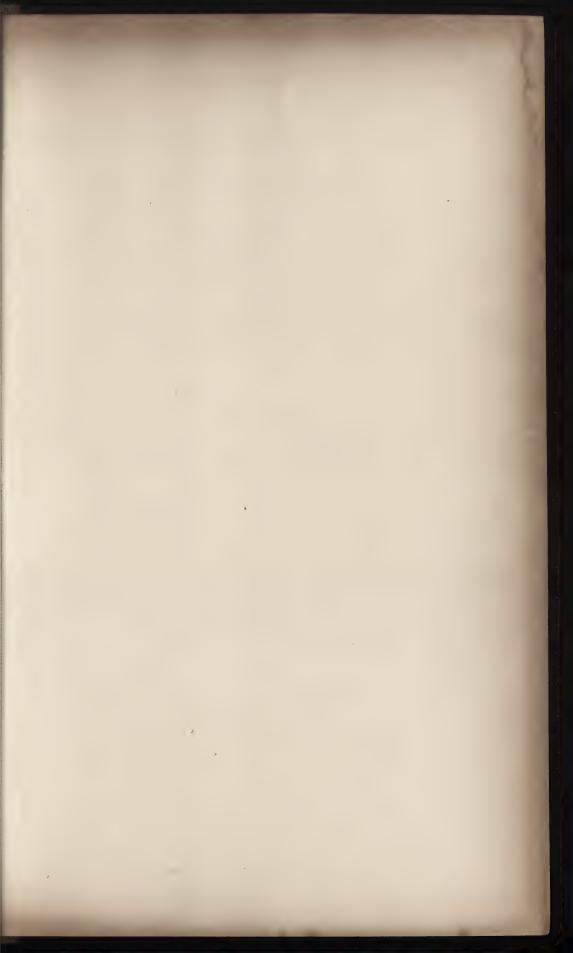
the middle of the tail, and lay them in small bundles; soak them in a glass of clear water, then press and squeeze each bundle with the fingers. Then cut them with scissors; and when you have made many bundles, tie them together any thickness you please for pencils, so that they can be put into the quill of a vulture, of a goose, of a hen, or of a dove. When you have made them in this manner, laying the points very even, take waxed thread or silk, and with knots fasten them well together, each sort by itself, the size you would have your pencils. Then take a quill, of a size corresponding to that of the bundle of hairs, and cut off the end of the quill, and put the bundle of hairs into the quill. Take care that the point project as far as you can squeeze it out, so as to leave the point firm, and the firmer and shorter it is the better. Then make a small stick of maple, larch, or chestnut, or any other good wood; make it smooth and clean, scrape it into the form of a spindle, of such a size that it shall fit tightly into the quill, and be about a span long (2); and this is the way to make pencils of minever. It is true that the pencils of minever are of various kinds; for instance, some proper for laying on gold, some for putting on flat washes, which require to be cut (mozzetto) a little with the scissors, or rubbed upon the porphyry stone, that they may separate a Some pencils should have a perfect point for drawing outlines, and some must be very small and fine for certain very minute works and figures (3).

Chap. 65. In what manner pencils of hog's bristles are to be made.

Pencils of hog's bristles are made in this manner. First take bristles from a white pig, which are better than those from one that is black (but they must be from the domestic pig), and make a large brush, in which you must put a pound of bristles, and bind them to a large stick (1). If you like, you may use these brushes for whitening and washing walls which are to be covered with mortar (smaltare), until they become very soft. Afterwards unfasten this brush, and make the bristles up into other brushes. Let some of them be of the kind which are called cut pencils (pennelli mozzi), in which the hairs are all of equal length; and some should be pointed, and you must have them of all sizes. Then make sticks of the wood formerly mentioned, and bind each bundle with a double waxed thread. Introduce the point of the stick into the bundle of bristles, and bind it evenly half the length of the bristles, and more upon the stick, and finish all the others in the same manner.

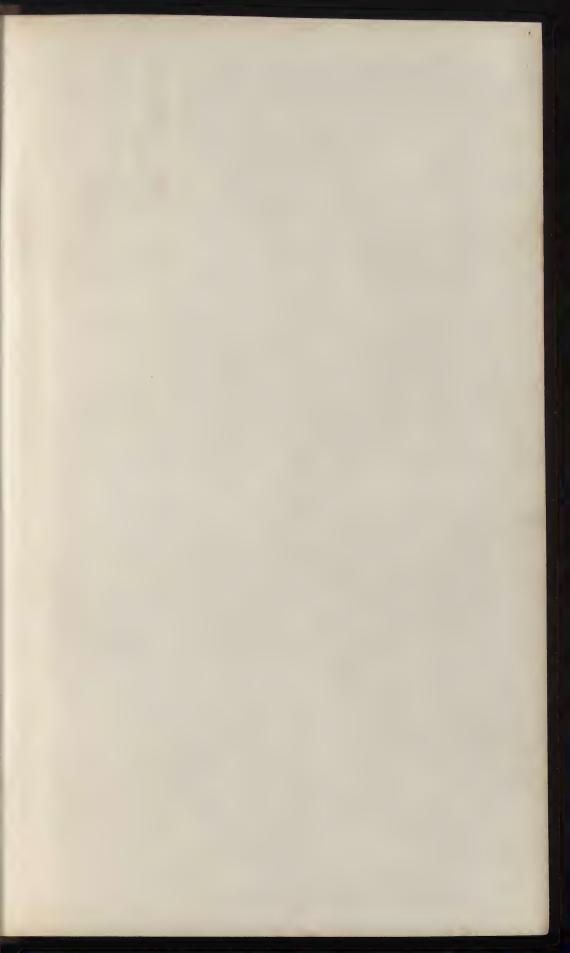
Chap. 66. How to preserve the tails of the minever from being moth-eaten.

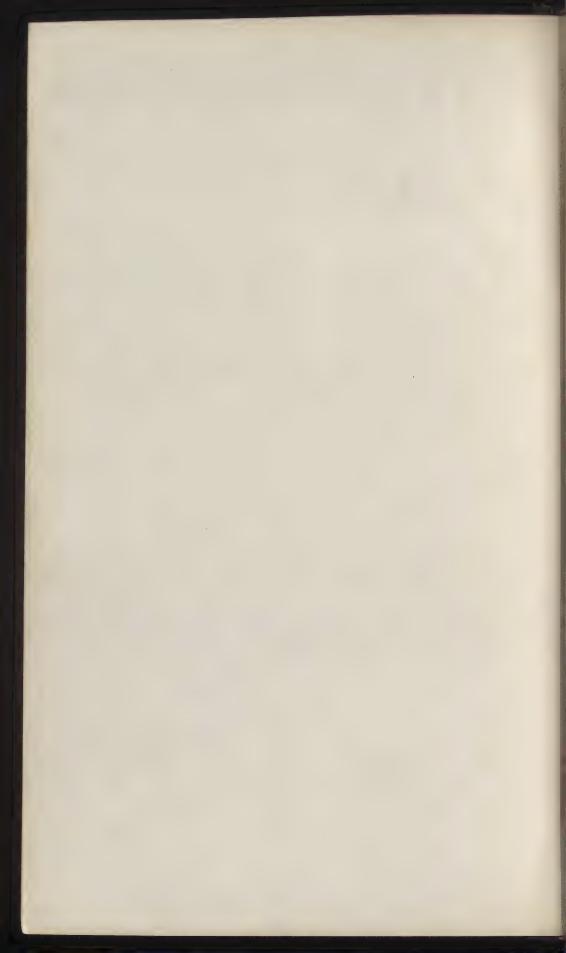
If you would preserve the tails of the minever so that they should not be moth-eaten, and the hairs should not fall off, steep them in kneaded clay or chalk, stick them tight into it, hang them up, and let them remain so. When you would use them, or make them into pencils, wash them well with clean water.





Takkasid Torbrael of Zaffirelle un a beld





### PART THE THIRD.

Chap. 67. The manner of painting on walls, that is, in fresco; and of colouring the faces of young persons.

I WILL now teach you to colour. I shall begin with painting on walls, and shall teach you step by step the manner in which you ought to proceed. When you are going to paint on walls, which is the most agreeable of all kinds of painting (1), procure, in the first place, lime and sand, and sift both of them well. If the lime is very rich and fresh, it will require two parts of sand and one of lime. Temper them well together with water, and temper enough to last you fifteen or twenty days. Let the lime rest for some time till it be quite slacked; for if any heat remain in it, it will crack the plaster (intonaco) (2). When you are going to lay on the mortar (ismaltare), first sweep the wall, and wet it wellyou cannot wet it too much; and let the lime be well stirred with a trowel, and spread it over once or twice, till the intonaco become quite even on the wall. Afterwards, when you are going to work, remember to make the surface of the mortar very stiff, and rather rough. Then, according to the subject or figures you are going to represent, if the intonaco be dry, take some charcoal and make your design. Adjust the proportions, first striking a line through the middle of the space you intend your picture to occupy. Then strike another (i. e. a horizontal) line, and try whether it be even. And in order to determine whether the line in the centre be straight, you must fix to it a string with a leaden weight at the end. Then put one foot of the large compasses on this string; turn the compasses half round on the under side; then put the point of the compasses on the cross where both lines meet, and make the other half circle above, and you will find that by the lines intersecting each other you will always have a cross on your right hand. There will be a similar cross on your left hand; and a line drawn from the point of intersection of one cross to that of the other will always be a horizontal line. Then draw with charcoal, as I have before directed you, historical pieces and figures, and divide the space on which you are going to paint into squares of equal size. Next take a small and pointed pencil of bristles, with a little ochre, without tempera, as liquid as water, and continue to draw your figures, shading them as you did with water-colours when I taught you to draw, and afterwards brush away the charcoal with a feather (3).

Then take a little sinopia without tempera, and with a finely pointed pencil mark out the noses, eyes, hair, and all the extremities and outlines of the figures, and let these figures be divided into an equal number of squares; for this will enable you to arrange the figures properly, which you are afterwards to colour. Then make your ornaments and accessories as you please. Take some of the before-mentioned lime, stir it well with a trowel until it be of the consistence of ointment. Then consider how much you can paint in a day; for whatever you cover with the mortar you must finish the same day. It is true that, when you are painting on walls during the damp weather in the spring, the mortar will remain wet until the next day; but if you can help it, do not delay, because when painting in fresco, that which is finished in one day is the firmest and best, and is the most beautiful work. Then spread over a coat of intonaco rather thin (but not too thin), first wetting the old Next take your large hog's hair brush, First steep it in clean water, and wet your mortar with it, and then with a slip of wood as wide as the palm of your hand rub over the intonaco so as to remove the lime where you have put too much, and put more where there is not enough, and thus make your mortar quite smooth. Then wet the mortar with your brush; if necessary, afterwards rub very smoothly and evenly over the intonaco with the point of the trowel. Then place your plumb-line as usual, and measure off an equal space on the intonaco below in the same manner as you did at first. Let us suppose that you can paint in one day the head only of a young male or female saint, such as that of our most holy Lady. Having thus smoothed the wall with your mortar, procure a glazed vessel; the vessels should all be glazed, and shaped like drinking-glasses, with wide feet, that they may stand firmly, and not spill the colours. Take the size of a bean of dark ochre (for there are two kinds of ochre, light and dark); and if you have no dark ochre, take light ochre ground very fine, put it into your vase; and take a little black, the size of a lentil, mix it with the ochre; take a little bianco sangiovanni, also the size of a bean, and as much light cinabrese as will lie on the point of a penknife; mix all these colours thoroughly together, and make them very liquid with water, without tempera. Prepare a pencil of hog's bristles, so fine that it may be introduced into the quill of a goose, and with this pencil draw with proper expression the face you are going to paint (remembering that the face is divided into three parts, namely, the forehead, the nose, and the chin, with the mouth) with a little of this colour, which is called at Florence Verdaccio (4), and at Sienna

Bazzeo; this you should use almost dry. When you have sketched out the form of the face, if the proportions or any other thing should displease you, with a large brush steeped in water rub over the intonaco, and efface and repair what you have done. Then take a little verde terra, very liquid, in another vase, and with a pencil of hog's bristles, without a point, squeezed with the fingers and thumb of the left hand, begin to shade under the chin, and all those parts which should be darkest,—under the lips, the corners of the mouth, under the nose, and under the eyebrow, making the shade darker near the nose, a little on the edge of the eye towards the ear; and in the same manner shading with judgment the whole face and hands, which are hereafter to be coloured with the flesh-colour. Next take a pointed pencil of minever, and perfect all the outlines of the nose, eyes, lips, and ears, with the verdaccio. There are some masters who, when the face is advanced thus far, with a little bianco sangiovanni tempered with water put on the high lights in their proper places; then give the rose-colours (rossette) to the lips and cheeks; then wash over the whole with the flesh-colours very liquid with water, and this will complete the colouring of the head. It is a good plan to retouch afterwards the high lights with a little white. Some painters wash over the whole face with the flesh-colour first, on that they put the verdaccio and carnations, and retouch the lights, and the work is finished (5). This plan is adopted by those only who know but little of the art; but do you pursue the method of colouring which I shall point out to you, because it was adopted by Giotto, the great master, who had Taddeo Gaddi, his godson, for his disciple for twenty-four years; his disciple was Agnolo his son; I was Agnolo's disciple for twelve years, and he shewed me this method, with which Agnolo coloured more agreeably

and brilliantly than did Taddeo his father (6). First take a small vase; put into it equal quantities of bianco sangiovanni and cinabrese, just as much as you think you shall want. Make them very liquid with clean water; then with a soft pencil of bristles, squeezed between the fingers and thumb as before, pass over the face when you have made the touches with verde terra; and with this red colour (rossetta) touch in the lips and the colour in the cheeks. My master was accustomed to put the colour in the cheeks nearer the ear than the nose, because it assisted in giving relief to the face, and then he softened it well into the surrounding colours. cure three small vases, and make three shades of flesh-colour (incarnazione), that is to say, the darkest is to be lighter by one half than the rossetta, and the other two each lighter than the other in regular gradations. Now take some colour from the little vase containing the lightest tint, and with a very soft pencil of bristles without a point, previously squeezed with the fingers, paint in the lights of the face; then take the middle tints of the flesh-colour, and paint the middle tints of the face, hands, and bust, when you paint a naked figure. Afterwards take the third vase of flesh-colour, and go to the edges of the shadows, leaving the verde terra always visible in the extremities, and in this manner softening one tint into the other, until it is all covered as well and as evenly as the nature of the work will permit. But if you would have your work appear very brilliant, be careful to keep each tint of flesh-colour in its place, and do not mix one with another. But seeing others work, and practising with your hand, will make you more expert than any other instructions. When you have painted in these carnations, make a tint much lighter - indeed almost white, and use this above the eyebrow, on the light of the nose, the tip of the chin, and the

eyelids; then take a dry pencil of minever, and with pure white put on the lights of the eyes, the point of the nose, and a little on the lips, and so touch tenderly all the lights. Then put a little black into another vase, and with a pencil mark out the outlines of the eyes above the lights of the eyes, and make the holes of the nostrils and the interior of the ear. Then put some dark sinopia into another vase, paint the under outline of the eyes, the contour of the nose, the brows, and the mouth, and shade a little under the upper lip, which must be a little darker than the under. When these outlines are finished, dip the same pencil in verdaccio, and retouch the hair; put on the lights with white, and with light ochre, tempered with water, and a soft brush, cover over the hair as you did the carnations. Mark out the extremities of the shadows with dark ochre, then with a small and very pointed pencil of minever put on the lights of the hair with white and light ochre. Retouch the outlines and extremities of the hair with sinopia as you did on the face, which will finish it. And this is sufficient for you with respect to painting youthful faces.

### Chap. 68. How to colour the face of an old person in fresco.

When you wish to paint the face of an old man, you must proceed in the same manner as in colouring the face of a young person, except that your verdaccio and carnations must be darker, observing exactly the same method as you did with the head of the young person, in the hands, feet, and bust. If you intend your old man to have his hair and beard grey; after having made out the drawing with a pointed pencil of minever, filled with verdaccio and white, put into a small vase some bianco sangiovanni and a little black, mixed together, and liquid, and with a pencil of bristles,

without a point, and very soft, which has been previously squeezed, lay an even tint of colour on the hair and beard; then make a mixture a little darker, and paint the shades; afterwards with a very small and pointed pencil of minever put on tenderly the lights of the hair and beard. And with such colours you may paint the face.

# Chap. 69. How to paint hair and beards many different hues in fresco.

When you would paint hair and beards of other hues, either red, or sandy, or black, or any colour you please, first make out the drawing with verdaccio and white, and then lay on a flat colour in the usual mode, as above mentioned. I warn you, however, to let it be of some colour that you are accustomed to see.

### Chap. 70. Of the proportions of the human figure (1).

Before I proceed further, I will make you acquainted with the proportions of a man; I omit those of a woman, because there is not one of them perfectly proportioned. First, as I have said before, the face is divided into three parts, namely, the forehead, one; the nose, another; and from the nose to the chin, the third: from the edge of the nose the whole length of the eye, one of these parts; from the corner of the eye to the ear, one part; from one ear to the other, the length of one face; from the chin to the beginning of the throat, one part; the length of the throat, one part; from the fork (forcella) of the throat to the top of the shoulder, one face; and the other shoulder the same; from the shoulder to the elbow, one face (2); from the elbow to the beginning of the hand, one face and one part; the length of the hand, one face; from the fork of the throat to the pit

of the stomach, one face; from the pit of the stomach to the navel, one face; from the navel to the beginning of the thigh, one face; from the thigh to the knee, two faces; from the knee to the heel, two faces; from the heel to the sole of the foot, one part; the length of the foot, one face (3).....

The length of a man is equal to his width with the arms extended. The arm with the hand reaches to the middle of the thigh. The whole length of a man is eight faces and two parts. A man has on his left side one rib less than a woman (4). Man should be dark, woman fair, &c....

I shall not speak of irrational animals, because they appear to have no certain proportions. Draw them as frequently as you can from nature, and you will ascertain them yourself. And this requires much practice.

### Chap. 71. How to colour drapery in fresco.

Let us now return to colouring in fresco and on walls. If you wish to colour a drapery, first draw the outlines tenderly with verdaccio (1), and do not let your drawing be too conspicuous, but rather light. Then, whether you choose to make your drapery white, or red, or yellow, or green, or any colour you please, take three small vases, and into one put any colour you please, -we will say red. Take some cinabrese, and add to it a little bianco sangiovanni, and this shall be one gradation of colour; let it be thoroughly mixed with water. Of the other two colours, make one of a very light tint,—that is to say, put to it plenty of bianco sangiovanni. Next take an equal quantity from these two vases, mix them together, and make a third tint. Now dip a pencil of hog's bristles, rather large and pointed, into the first tint, that is to say, into the darkest, and paint the folds of the drapery in the darkest parts, not covering the middle tints of your figure.

take the middle tint, lay on a flat colour from one dark fold to another, uniting them and softening them into the extreme shades, and bring this middle tint forward towards the parts which should be in relief, preserving carefully the shape of the naked figure. Then take the third tint, of the lightest colour, and in the same manner in which you shaped the dark folds of the drapery, shape the light folds, arranging them with grace, propriety, and taste. When you have laid on each colour two or three times (never suffering one tint to take the place of another, or mix with it, except where they unite), soften and blend them together. Then put, in another vase, some colour much lighter than the lightest of the three, and paint the lights on the top of the folds. Into another vase put pure white, and put in the highest lights. Afterwards, with pure cinabrese glaze the darkest folds and the outlines; and in general this is all you need do. But by seeing others work, you will understand better than by reading. When you have finished your figures, or historical pieces, leave them so that the lime and colours shall dry thoroughly; and if any drapery remain to be done when dry (in secco), you must proceed as follows.

Chap. 72. How to colour walls "in secco," and what tempera is proper for that purpose.

Any of the colours used in painting in fresco may also be used in secco; but in fresco some colours cannot be used, as orpiment, cinnabar (1), azzurro della magna, minio, biacca, verderame, and lacca. Those which may be used in fresco are giallorino, bianco sangiovanni, black, ochre, cinabrese, sinopia, verde terra, and amatisto. Colours used in fresco must be made lighter with bianco sangiovanni (2). And if you wish the greens to preserve their green tint, make them lighter with

giallorino; when you would have them take the colours of sage, add bianco (3). Those colours which cannot be used in fresco must be made lighter by the addition of biacca, giallorino, or orpiment; but orpiment is very rarely used: indeed I think it superfluous. To make a light blue, take three of the same kind of small vases as I directed you to use when speaking of the carnation tints and cinabrese, and prepare these in the same manner, except that where you then used bianco, you should now use biacca, and temper them all. Two sorts of tempera are good; but one is better than the other. The first tempera consists of the white and yolk of an egg, into which are put some cuttings from the top of a fig-tree; beat them well together; then add some of this tempera moderately, and not in too great quantity, to each of the vases, as if you were diluting wine with water. work with your colours, either white, or green, or red, as I directed you in fresco-painting; and proceed with your draperies in the same manner as you did in fresco with tempera, except that you need not wait for it to dry. If you use too much tempera, the colour will be liable to crack, and peel off the wall. Be wise and skilful. Remember before you begin to work, if you wish to make a drapery of lake, or any other colour, take a clean sponge, and having mixed the white and yolk of an egg with about two porringers full of clean water, and beaten them well together; dip the sponge into the tempera and squeeze it half dry, and wash with it the whole of the space on which you mean to paint in secco, and ornament with gold, and then colour it as you please (4). The second kind of tempera is the yolk of the egg only; and you must know that this tempera is of universal application on walls, on pictures (5), and in fresco, and you cannot use too much of it, but it would be wise to take a middle course.

Before we proceed further, I would have you paint a drapery in secco, in the same manner as you did in fresco, with cinabrese. Now I will give you directions to paint such a one, of ultramarine blue. Take the three vases as usual; into the first put two parts azure and the third biacca; into the third. two parts biacca and one part azure: mix and temper them as I have directed you. Then take an empty vase, that is to say, the second; put into it an equal quantity from each of the others, and stir all well together with a pencil of hog's bristles, or a firm pencil of minever without a point; and with the first colour, that is to say, the darkest, mark out the darkest folds. Take the middle colour, and lay it flat over the middle tints, leaving the lights of the figure. Then take the third colour, and mark out the light folds which come upon the parts in relief, and unite and soften them with each other, as I shewed you how to do in fresco. Take the lightest colour, add to it some biacca, with tempera, and put on the high lights. Then take a little pure biacca, and retouch a few of the highest lights as the shape of the naked figure requires. Afterwards with pure ultramarine glaze the darkest shades and outlines; and in this way paint the drapery, according to its situation and colours, without soiling or mixing them one with another, except to soften them. And in this manner use lake, and all other colours which can be used in secco.

# Chap. 73. To know how to make a purple colour (colore bisso).

If you would make a beautiful purple colour, take equal quantities of fine lake and ultramarine, and temper them. Then take three vases as above, and leave some of the purple colour to retouch the shades: and of the rest, make three

gradations of colour with which to colour the drapery, making each lighter than the other, as before directed.

Chap. 74. To make a purple colour in fresco.

If you would make a purple colour to use in fresco-painting, take indigo and amatisto, and mix them with tempera, as before mentioned, and make four shades. Then paint your drapery.

Chap. 75. To imitate azzurro oltre marino when painting in fresco.

To make a drapery in fresco like ultramarine, mix indigo with bianco sangiovanni, and make them into regular gradations of colour; then glaze in secco the extreme darks with ultramarine.

Chap. 76. To colour a drapery of a purple or morello colour (pagonazzo o ver morello) in fresco.

If you would paint in fresco a drapery like lake (1), take amatisto and bianco sangiovanni, and mix your colours in shades as before, and soften and blend them together. Then in secco retouch the extreme shades with pure lake, tempered.

Chap. 77. To make a changeable green drapery in fresco.

If you would make a changeable green drapery for an angel, lay a ground of two shades of carnation, one darker than the other, softening them well together. Then shade the dark part with ultramarine, and the lighter carnation tint shade with terra verde, retouching them in secco. And remember, that every thing you paint in fresco must be finished and retouched in secco with tempera (1). Put on the lights

of the drapery in fresco, exactly as I directed you to do with other colours.

Chap. 78. To make a changeable colour called cignerognolo in fresco.

Take bianco sangiovanni and black, and make a grey colour called cignerognolo (1). Lay your colours on the ground of the picture, put on what lights you please with giallorino, and the rest with bianco sangiovanni. For the shades, use either purple, or black, or dark green.

Chap. 79. To make a changeable drapery of lake in secco.

If you would make a changeable drapery in secco, cover it with a flat tint of lake; use flesh-colour for the lights, or, if you will, giallorino. Glaze the dark parts with pure lake, or purple, with tempera.

Chap. 80. To make a changeable drapery in fresco or in secco, of ochre.

To make a changeable drapery of ochre either in fresco or in secco, cover with flat tints of ochre. Use bianco for the lights; for the lighter shades, shade with green; the darker, with black and sinopia, or, if you please, amatisto.

Chap. 81. To make a changeable drapery of a grey (berettino) (1) colour in fresco or in secco.

If you would make a grey drapery, take black and ochre; that is, two parts ochre and the third black. Make your gradations of colour as I have before taught you, in fresco and in secco.

Chap. 82. To paint a drapery in fresco or in secco of a berettino (1) colour, like that of wood.

If you would make a drapery the colour of wood, take ochre, black, and sinopia; two parts ochre, and the other part black and sinopia in equal quantities. With these make the gradations of your colours, in fresco, or in secco, or in distemper.

Chap. 83. To make a drapery of azzurro della magna, or ultramarine, or a mantle for the Virgin.

If you would make a mantle for our Lady of azzurro della magna, or any other drapery that you wish to be of a deep blue, first lay a ground on the mantle or drapery of sinopia and black-two parts sinopia and the third blackhaving previously marked out the large folds with a bodkin or needle of iron; then, when painting in fresco, take azzurro della magna, well washed either with lye or with clean water, and grind it for a short time on the stone. Afterwards, if the blue be of a fine and full colour, add to it a little diluted glue, neither too strong nor too weak. Of this I shall hereafter speak. Then add to the blue the yolk of an egg: it must be the yolk of an egg laid by a hen fed in the town, because such eggs are of a paler colour: stir it well together with a soft hog's-hair pencil, and pass it three or four times over the drapery. When the ground is well covered and dry, with a little indigo and black shade the folds of the mantle as well as you can, returning many times over the shades. If you would make it lighter on the knees, or on any other part, scratch off the blue with the handle of the brush. If you lay a ground or a drapery with ultramarine, temper it as azzurro della magna is usually tempered, and go

over it two or three times. To shade the folds, take fine lake and a little black, tempered with the yolk of an egg. Shade them as tenderly as you can, and very neatly, first with a little of this, and afterwards with the iron point; and make as few folds as you can, because ultramarine does not accord well with other mixtures.

Chap. 84. To make a black drapery, like that of a monk or friar, in fresco and in secco.

If you would paint a black drapery of a monk or friar, take pure black, making your gradations of colour as I before directed you in fresco and in secco tempered.

Chap. 85. A good way of colouring a mountain in fresco or in secco.

If you would paint a mountain in fresco or in secco, make a greenish colour (verdaccio), one part of black and two parts of ochre (1). Make your gradations in fresco with bianco, without tempera; and in secco use biacca with tempera; and paint the parts in relief or in shadow as you would paint a figure. And when you have to paint mountains which appear at a distance, make your colours darker (2); and if you would have them seem nearer, let your colours be lighter.

Chap. 86. How to colour trees, plants, and grass, in fresco and in secco.

If you would embellish this mountain with groves of trees and grass, first paint the trunk of the tree with pure black tempered, which cannot be well done in fresco. Then make some of the leaves of dark green or verde azzurro (verde terra is not good for this purpose), and let the foliage be thick.

Make a lighter green with giallorino, and let your leaves be smaller as you draw near the top of the tree. Touch the lights on the top with giallorino alone, and the trees and foliage will appear in relief; but first, when you have painted the trunk of the tree, draw with chalk (calcina) the branches of the tree, and put on them the leaves, and afterwards the fruit, and upon the grass draw some flowers and birds.

Chap. 87. How to colour buildings in fresco and in secco.

If you would paint buildings, make them of any size you please, and draw your lines. Paint them with verdaccio, or terra verde, either in fresco or in secco, but let the colour be very liquid: some you may make purple, some cignerognolo, some green, some grey, or any colour you please. Then make a long straight line, one of the edges of which should be curved, where it does not approach to the wall: go over it lightly with the pencil and with colour, and do not daub any part: and you will paint these cornices with great pleasure and delight. And in the same manner paint vases. columns, capitals, porticos, garlands of flowers, pyxes (ciborii), and other ornamental parts of the picture. These are ornamental parts of our art in which you will take great delight. And remember, that the same rules of light and shade which apply to figures, must be observed here with regard to buildings; therefore, let the cornice which you make at the top of the house incline downwards, towards the obscure (i. e. as it recedes from the eye); and let the middle cornice of the building facing you be quite even: let the cornice at the base of the building ascend in a direction quite contrary to that of the cornice at the top of the building (1).

Chap. 88. How to draw a mountain naturally.

If you would have a good model for mountains, so that they should appear natural, procure some large and broken pieces of rock, and draw from these, giving them lights and shades as you see them on the stones before you.

#### PART THE FOURTH.

Chap. 89. How to paint in oil (1) on walls, pictures, iron, or whatever you please.

Before we proceed further, I will teach you to paint in oil, on walls, or on pictures (which is much practised by the Germans) (2), and also on iron or stone. But we will first speak of walls.

Chap. 90. How to begin painting in oil on walls.

Cover your wall with mortar, exactly as you would do when painting in fresco; except that where you then covered but a small space at a time, you are now to spread it over your whole work. Make your design with charcoal, and fix it with ink, or verdaccio tempered. Then take a little glue much diluted—a whole egg, well beaten in a porringer, with the milky juice of the fig-tree, is still better: you must add to it a glassful of clean water. Then, either with a sponge or a pencil without a point, very soft, go once over the ground on which you are going to paint, and leave it to dry for one day at least (1).

Chap. 91. How to prepare good oil for tempering colours, and also for mordants, by boiling over the fire.

It will be very useful to you to know how to prepare this oil, either for mordants, or any other purpose; therefore, take one, two, three, or four pounds (1) of linseed oil, and put it into a new pipkin; if it be glazed, so much the better. Procure a small furnace, and make a round hole, into which you are to put the pipkin, so that the flame may not reach it; because if it were to take fire, you would run the risk of losing your oil and of burning the house. When you have made your furnace, put a moderate fire in it; and the more slowly your oil boils, the better and more perfect will it be. Let it boil until it be reduced to half the quantity. But to prepare mordants, when it is reduced to half the quantity, add to each pound of oil one ounce of liquid varnish (vernice liquida), and let it be very fine and clear: and oil thus prepared is good for mordants.

## Chap. 92. How to prepare good and perfect oil, by baking it in the sun.

When you have prepared this oil, which is done in another way (and is preferable for colours, but not for mordants), put some more linseed-oil in a basin of bronze or copper. And in August (quando è il sole leone) place it in the sun; and if you keep it there until it be half wasted, it will be in a state for mixing with colours. And you must know, that at Florence this has been found the best mode of preparing it possible (1).

## Chap. 93. How to grind colours in oil, and to use them on walls.

Let us return to grinding colours. You must grind them as you did when working in fresco, except that having then ground them with water, you must now grind them with oil. And when you have ground them, that is to say, all the colours (for every colour can be used in oil, except bianco sangiovanni), provide small vessels, into which put these

colours, either of lead or of tin. And if you can find none of either kind, get glazed vessels, and put the ground colours into them; shut them up in a box, and keep them clean. When you would paint a drapery with three gradations of colour, as I have previously taught you, divide, and let each colour be laid in its proper place with a pencil of minever, uniting one colour well with another, and making the colours very firm. Then rest for a day, and return again to your work, examine it, and repaint it where necessary. And in this way paint flesh (incarnazione), or any thing you please. Provide a vessel of tin or lead (somewhat like a lamp), about the height of your finger, half fill it with oil, and keep your pencils in it, that they may not dry (1).

Chap. 94. How to paint in oil on iron, on pictures, and on stone.

And in the same manner you may paint on iron, on stone, or on pictures, first passing some glue over them, and also on glass, or on any thing you please (1).

Chap. 95. How to adorn walls with gold and tin.

Having now taught you how to paint in fresco, in secco, and in oil, I will tell you how to embellish walls with gilded tin, white tin, and fine gold. And take especial notice, that you use as little silver as possible, because it becomes black on walls and on wood. Use instead of it beaten tin or tin plates (stagnuoli). Beware also of gold much alloyed (oro di metà), which quickly turns black.

Chap. 96. Shewing that you should use fine gold and good colours.

It is usual to adorn walls with gilded tin, because it is less

expensive than gold. Nevertheless, I give you this advice, that you endeavour always to use fine gold and good colours, particularly in painting representations of our Lady. And if you say that a poor person cannot afford the expense, I answer, that if you work well (and give sufficient time to your works), and paint with good colours, you will acquire so much fame, that from a poor person you will become a rich one; and your name will stand so high for using good colours, that if some masters receive a ducat for painting one figure, you will certainly be offered two, and your wishes will be fulfilled: according to the old proverb, Good work, good pay. And even should you not be well paid, God and our Lady will reward your soul and body for it (1).

## Chap. 97. In what manner you should cut gilded tin, and ornament with it.

When you ornament any thing with tin, either white or gilded, and find it necessary to cut it with a knife, first procure a smooth plank of walnut, pear, or plum-tree, not too thin, cut in four like a real sheet of paper. Then take some liquid varnish, cover the board with it, and lay your piece of tin upon it, well spread and smooth. Then cut it with a knife very sharp at the point, and with a ruler cut off a strip the width you intend to make your fringes (fregi), and finish them with black or other colours.

### Chap. 98. How to make green tin for ornaments.

Sometimes, in order to embellish these fringes, you may grind verderame with linseed-oil, and spread it over a sheet of white tin, and it will be a beautiful green (1). Let it dry in the sun; then fasten it upon a plank, with some varnish; cut it then with a knife; or if you would first stamp it with

roses or other devices, spread liquid varnish upon the plank, and put your roses upon it; then fix it to the wall. Again, if you would make stars of fine gold, or a glory round the head of saints, or ornaments with the knife, in the manner I have shewn you, you must first put fine gold upon gilded tin.

Chap. 99. How to gild tin, and how fine gold is laid on with gold size (doratura).

Gilded tin is prepared in this manner. Provide a smooth plank, three or four braccia long, grease it with fat, or with suet. Put some white tin on it; then procure a liquor called gold size (doratura); put it upon the tin in three or four places, a very little in one place; and with the palm of your hand spread the gold size over the tin equally, as much in one place as in another. Let it dry in the sun. When it is almost dry, but still a little sticky, prepare your fine gold, and cover the tin with it. Polish it with clean cotton; stick the tin to the plank; and when you would make use of it, apply the liquid varnish, and make stars, or any ornaments you please, as I directed you to do with gilded tin.

Chap. 100. How to make and cut stars, and fix them on walls.

You must first cut out the stars with the assistance of a ruler; and when you are going to use them, first put on the azure (where the stars appear) a lump of wax; and work the stars in rays, as you have cut them out on the plank. And you must know that in this way there is much more labour, although you use less fine gold, than there is in gilding with mordants.

Chap. 101. In what manner this tin when gilded can be used for the glories of saints on walls.

If you would make the glories of saints without mordants, when you have coloured the figure in fresco, take a bodkin and scrape or mark out the glory above the contour of the head. Then, in secco, spread varnish upon the glory; put on it the gilded tin or fine gold; then spread the varnish over it, strike it with the palm of your hand, and you will see all the marks made by the bodkin. With the point of a sharp knife gently cut away the loose gold, and remove it from the other part of your work (1).

Chap. 102. How to raise a glory in lime on walls.

You must know that if you please you may raise a glory with a trowel on the fresh mortar in this manner. When you have drawn the head of the figure, take the compasses and make the crown. Then take a little very rich lime, made into a paste, and spread over it, thickly in the further parts, but thinner near the head. Then take the compasses again, when you have smoothed the lime, and with the knife cut away the lime above the line of the compasses, and it will remain raised. Then have a strong stick of wood, and make the rays round the glory; and this is the way you are to make glories in relief on walls (1).

Chap. 103. How, after painting on walls, we proceed to paint pictures.

When you do not choose to adorn your figures with tin, you must use mordants, which may be applied on walls, on pictures, on glass, on iron, and on every thing: of these I shall hereafter treat in their order, and shall inform you what

are strong, and capable of withstanding the air, the wind, and water; what require to be varnished, and what must not be varnished. But let us return to our colouring, and from walls proceed to pictures, which are the pleasantest and neatest part of our art (1). And remember, that he who learns to paint first on walls, and then on pictures, does not become so perfect a master of the art, as when he happens to learn to paint on pictures first, and then on walls.

#### PART THE FIFTH.

Chap. 104. In what manner the art of painting pictures should be acquired.

Know, that you cannot learn to paint in less time than that which I shall name to you. In the first place, you must study drawing for at least one year; then you must remain with a master at the workshop for the space of six years at least, that you may learn all the parts and members of the art,-to grind colours, to boil down glues, to grind plaster (gesso), to acquire the practice of laying grounds on pictures (ingessare le ancone), to work in relief (relevare), and to scrape (or smooth) the surface (radire), and to gild; afterwards to practise colouring, to adorn with mordants, paint cloths of gold, and paint on walls, for six more years,-drawing without intermission on holydays and workdays. by this means you will acquire great experience. If you do otherwise, you will never attain perfection. There are many who say that you may learn the art without the assistance of a master. Do not believe them; let this book be an example to you, studying it day and night. And if you do not study under some master, you will never be fit for any thing; nor will you be able to shew your face among the masters.

Chap. 105. How to make paste of flour (colla di pasta o ver sugolo) (1).

Beginning to paint pictures in the name of the most holy Trinity, and always invoking this name, and that of the glorious Virgin Mary, we must first prepare a foundation, and this is made with various kinds of glue. There is a cement made of boiled paste, which is used by persons who make books, and is proper to fasten cards, and also to fix tin upon paper. It is used sometimes also when paper is to be glued together for the use of sculptors. This paste is made in the following manner. Fill a pipkin almost full of clean water, and make it warm. When it is just going to boil, shake some fine flour, a little at a time, into the pipkin, stirring it continually with a small stick; make it boil, but do not let it be too thick. Pour it out, and put it into a porringer. If you wish it to remain sweet, add some salt; and use it when you want it.

## Chap. 106. How to make glue for fastening stones together (1).

There is a cement proper for fastening stones, and this is made of any kind of glue, new wax, and pounded stone, strained and tempered together over the fire. First clean your stone, then heat it, and apply the glue. It will withstand air and water, and is used to fasten grind-stones and mill-stones.

### Chap. 107. How to make cement for joining glass vessels.

There is a cement proper for joining broken glasses or jugs, or other beautiful vases of Damascus or Majolica (1). This is made of liquid varnish, a little white lead, and a little verdigris. Make it of the same colour as the glass; if it be blue, add a little indigo; if it be green, add more verdigris; et sic de singulis. Grind these ingredients well together, as intimately as you can. Take the pieces of your broken vases, though they be in a thousand pieces, join them together with

this glue; and if you let them dry for the space of some months, sheltered from the sun and wind, you will find these vases stronger and better able to keep out the water than when they were whole.

Chap. 108. How fish-glue is to be used and dissolved.

There is a glue called fish-glue (colla di pesce, isinglass). This is prepared from many kinds of fish. If you put a piece of this to your mouth, and wet it, and then rub it a little on your vellum, or other cards, it will fasten them strongly together. When dissolved, it makes a good and most excellent cement for lutes, or other delicate works of paper, wood, and bone. When you put it over the fire, add for each piece of glue half a glass of clean water (1).

Chap. 109. How colla di caravella (1) is made, how dissolved, and for what purposes used.

There is a glue called colla di spicchi, which is made of the feet, sinews, and clippings of skins of goats (caravelli). This glue is made in January or March during the great cold or high winds, and is boiled with an equal quantity of water until it be reduced to less than half. Then pour it out into flat vessels, such as saucers for jelly, or basins. Let it remain one night; the next morning cut it in slices, like bread, with a knife; put the pieces on rush-mats to dry in the wind, without sun; and it will become excellent glue. This glue is used by painters, by saddlers, and by many masters, as I shall hereafter tell you. It is good glue for wood, and many other things, of which we shall treat more fully when shewing how it is to be used, and in what manner for plaster, in tempering colours, making lutes, in inlaid works (tarsie), also to fasten wood, and a number of leaves (of books), in tem-

pering plaster, in working with plaster in relief, and in many other things.

Chap. 110. Excellent glue to temper grounds for pictures.

There is a glue made from shavings of the skins of sheep and goats, and from the clippings of these skins. These are to be well washed, and laid in water for the space of one day to soften, before they are boiled down. Boil them until the quantity of water be reduced to one-third part; and when you have no glue (colla di spicchi) you may use this for mixing with the grounds of your pictures; and it is impossible to find better (1).

### Chap. 111. Glue proper for tempering azures, and other colours.

There is a glue made of the parings of parchment. Let it boil in clean water until the water be reduced to about a third in quantity. It makes a glue as clear as a crystal, and is good for tempering dark blues; and if you have to lay a flat tint of any colour not properly tempered, give it a coat of this size. Temper the colours again, and fix them; you may varnish them if you please when used on pictures, and also those blues used on walls (1). This size is also good for mixing with grounds; but it is naturally thin, and plaster which is to be afterwards gilded requires a richer kind of glue.

### Chap. 112. To make a glue of lime and cheese (1).

There is a glue used by workers in wood which is made of cheese put into water to soften. Rub it down with a muller with both hands, adding a little quick lime. Apply it to the boards you wish to join, unite them, and fix them well together. And this is sufficient information to enable you to make many kinds of glue.

#### PART THE SIXTH.

Chap. 113. How to begin to paint pictures.

Now we are really going to paint pictures. In the first place, a panel of the wood of the poplar, lime, or willow-tree, must be prepared, on which to paint the picture. Let it be made quite smooth: if it be defaced with knots, or if it be greasy, you must cut it away as far as the grease extends, for there is no other remedy. The wood must be very dry; and if it be such a piece that you can boil in a cauldron of clean water, after the boiling it will never split. Let us now return to the knots, or any other defect in the smoothness of the panel. Take some glue (colla di spicchi), and about a glassful of clean water, melt and boil two pieces (spicchi) in a pipkin free from grease; then put in a porringer some sawdust, and knead it into the glue; fill up the defects or knots with a wooden spatula, and let them remain. Then scrape them with the point of a knife, till they are level with the rest of the panel. Examine if there be any nail, or other thing. that renders the panel uneven, and knock it into the panel; then provide some pieces of tin-plate, like quattrini (small pieces of money), and cover over the iron with them. And this is done that the rust of the iron may not rise through the ground (1). The surface of the panel cannot be too Boil some glue, made of parchment-shavings, till smooth. the water be reduced to one-third of what it was at first; and when put on the hands, if one hand stick to the other, it is

sufficiently boiled. Strain it two or three times. Put half this glue into a pipkin, add a third part water, and boil well together. Then with a hog's-hair pencil, large and soft, pass a coat of the glue over the panel, or foliage, or pyxes (civori), or columns, or whatever you work upon, that is to be covered with a ground (ingessare), and let it dry. Then take some of your first strong glue (colla forte), and pass twice over your work, letting it dry well between each coat of glue, and it will be glued to perfection. Do you know the effect of the first glue? A weak water or liquor is absorbed from it by the wood, which operates exactly as if, when fasting, you eat a few comfits and drank a glass of wine, which gives you an appetite for dinner. So this glue prepares the wood for the glue and grounds to be applied afterwards.

### Chap. 114. How to fasten linen on panels.

Having thus spread the glue, get some linen-cloth, old, fine, and white, and free from grease. Take your best glue, cut or tear this linen into large and small strips, soak these in the glue, and spread it with your hands over the surface of the panel; remove the seams, and spread it well with the palms of the hands, and leave it to dry for two days. And remember, it is best to use glue when the weather is dry and windy. Glue is stronger in the winter. For gilding, the weather should be damp and rainy.

## Chap. 115. How to lay grounds of gesso grosso on the surface of a picture with a spatula (1).

Where the panel is very dry, take the point of a knife like a rasp (mello), rasp it well, and make the surface quite even. Then take some gesso grosso, that is to say, volteranno,

purified, and sifted like flour. Put a porringer full on the porphyry slab, grind it well with this glue, as you would grind colours, collect it, and put it on the surface of the pictures, and, with a very smooth and rather large spatula, cover the whole surface, and wherever you can use the spatula do so. Then take some of this ground plaster (gesso), warm it, take a soft hog's-hair pencil, and give a coat on the cornices and foliage, and on the even surfaces with the spatula. Give three or four coats on the other parts of the cornices; but on the level parts you cannot use too much. Leave it to dry for two or three days. Then take the iron rasp (mesella) (2), and level the surface; procure some small iron rods, which are called raffiette, such as you will find at the painters', who use several kinds of them. Pick out all the cornices and foliage which are not flat, and with these make every part of the surface of the ground smooth and free from knots.

# Chap. 116. How to prepare a fine ground (gesso sottile) for pictures.

You must now prepare a plaster for fine grounds, called gesso sottile. This is made from the same plaster as the last, but it must be well washed (purgata), and kept moist in a large tub for at least a month; stir it up well every day until it almost rots (marcise) and is completely slacked, and it will become as soft as silk. Throw away the water, make it into cakes, and let it dry; and this plaster (gesso) is sold by the apothecaries to our painters. It is used for grounds for gilding, for working in relief, and other fine works.

Chap. 117. How to prepare a ground of gesso sottile on a picture, and how it is to be tempered.

Having laid on the gesso grosso, rubbed down the surface, and polished it well and delicately, put some cakes of the gesso sottile into a pipkin of water, and let them absorb as much as they will. Put a small portion of it at a time on the porphyry slab, and, without adding any water to it, grind it to an impalpable powder. Put it then on a piece of linencloth, strong and white. When you have ground as much of it as you want (for you must consider what quantity you will want, that you may neither have to make two portions of tempered plaster nor to throw away any good plaster), take some of the same glue with which you tempered the gesso grosso. You must make sufficient at one time to temper both kinds of gesso. The gesso sottile requires less tempering than the gesso grosso; the reason for this is, that the gesso grosso is the foundation of all your work, and that how much soever you press the gesso grosso, a little water will still remain in it. For this reason make the same kind of glue for both. Take a new pipkin which is free from grease, and if it be glazed so much the better. Take a cake of this gesso sottile, and scrape it fine with a knife, as you would cheese, and put it into the pipkin. Put some of the glue on it, and stir the gesso as you would a paste for making fritters, smoothly and evenly, until there are no longer any lumps. Procure a cauldron of water, and make it very hot, and put into it the pipkin containing the tempered gesso. Thus the gesso will become warm, but will not boil; for if it should boil, it would be spoiled. When it is warm, take your picture, and a large and very soft pencil of hog's bristles, dipped in the pipkin, and taking up a proper quantity at a time, neither too much nor too little, spread it evenly over the level surfaces, the cornices, and the foliage. It is true that in doing this the first time you should spread and rub the gesso with your fingers and hand wherever you can, and this will incorporate the gesso grosso with the gesso sottile. When you have done this, begin again, and spread it with the brush, without touching it with the hand. Let it rest a little, but not so long as to dry thoroughly; then pass over it a third time with the brush, and let it dry as usual. Then give it a coat on the other side; and in this manner, always keeping your gesso warm, give the panels eight coats. Foliage and relievos require less, but you cannot put too much on cloths. This is on account of the rasping or rubbing down, which is done afterwards.

Chap. 118. How to prepare grounds of gesso sottile, not having previously laid on a ground with gesso grosso.

You may first, as I formerly directed you, pass glue two or three times over the panel, and all small and delicate works; then give them as many coats of gesso sottile as you find from experience they will require.

# Chap. 119. How to temper and grind gesso sottile for working in relief.

There are, nevertheless, some persons who grind gesso sottile with water and glue. This is proper for grounds where no gesso grosso is used, which require to be more diluted. This same kind of gesso is good for raising foliage and other works in relief, which are frequently necessary to be done. But when you are going to execute works in relief with this gesso, add to it enough Armenian bole to give it a little colour.

Chap. 120. How to begin to smooth the surface of a panel on which you have laid a ground of gesso sottile.

When you have finished laying the ground (which must be done in one day, even if you work at it in the night, in order to complete it in the usual way), let it dry in the shade for two days and nights at least. The drier it is the better. Tie some powdered charcoal in a piece of linen, and sift it over the ground of the picture. Then, with the feather of a hen or goose, spread this black powder equally over the ground, because the panel cannot be made too smooth, and because the iron with which you rub the picture is smooth also. When you remove it, the ground will be as white as milk, and you will then see whether it require more rubbing with the iron.

Chap. 121. How to plane surfaces on which gesso sottile has been laid, and of what use the planing is.

Take a flat raffietto, about as wide as a finger, and gently rub the surface of the cornice once; then with a sharp rasp (mella arrotata), which you must hold as freely and lightly as you possibly can, rub over the surface of the panel with a very light hand, brushing away the loose gesso with the feather. And know that this dust is excellent for removing grease from the pages of books (carte de libri). In the same manner rub smooth the cornices and foliage, and polish them as if they were ivory. And sometimes (for you may have many kinds of work) you may polish cornices and foliage, by rubbing them with a piece of linen, first wetted and then squeezed almost dry.

Chap. 122. How you should first draw on the panels with charcoal, and fix your outlines with ink.

Having well planed the surface of the ground, and made it as smooth as ivory, the first thing that you should do is, to draw on your panel with those crayons made of charcoal of the willow, which I formerly taught you to make. But you must fasten the charcoal to a stick about the length of your face, which will better enable you to hold it. Have a feather ready, that when any stroke appears to you to be badly drawn, you may efface it with the feather, and draw it again. Draw with a light hand, and shade the hollow parts and the faces as you did with the pencil, and with the same pen with which you made drawings (penneggiasse). When you have finished drawing your figures (especially if the picture be of great value, and you expect it to bring you gain and honour), leave it for a day, return many times to examine it, and improve it wherever you find it necessary. When it appears to you correctly drawn (if possible copy from, or look at, any thing like it in pictures painted by good masters, which is no shame to you, if you copy the figures well), gently rub away the charcoal with the feather from the design, so that it may be just seen, and do not rub away too much, lest you should not understand your design. Put a few drops of ink into a glass half full of water, and with a pointed pencil of minever mark over the outline of your design. Then with the feather part of the pen brush away the charcoal. With some more of the ink, and a flatpointed pencil of minever, shade the depths and the shadows of the face, and you will have made an agreeable design, which will cause all men to fall in love with your works.

Chap. 123. How you should draw the outlines of the figures when you are going to make a gold ground.

When you have sketched your design on the panel, mark out, with a needle fixed into a small stick, the outlines of the figure, into the ground which you are going to cover with gold, and the ornaments which you intend to make on the figures, and certain draperies which are to be of cloth of gold.

Chap. 124. How works in relief are executed on pictures with gesso sottile (1), and how precious stones are affixed to them.

Besides this, take some of the same gesso for relieving, if you would raise ornaments or foliage, or fix precious stones to certain ornaments before or to the figure of God the Father (2), or our Lady, or certain other ornaments which embellish your work, and which are stones of various coloured glass (3). Arrange them with judgment, having your gesso in a vase upon some hot ashes, and another vase of hot water, because you must wash your pencil frequently; and this pencil must be of minever, the hairs fine and rather long. Take a little of the gesso on the point of the pencil, and with that raise what figures you wish to make in relief; and if you raise any foliage, draw the design previously, and be careful not to relieve too much, or to make your design confused; for the clearer you make your foliage, the better will you be able to display the design, and to burnish it with the stone. There are some masters who, having relieved all they wish, give one or two coats of the gesso which they have used for the ground of the picture, and also of gesso sottile, with a soft pencil of bristles. But if you relieve but a small quantity, it appears to me that it will be better, and that the

work will be firmer and more secure, without the gesso, for the reason I have before given you, not to use different kinds of gesso on the same picture.

Chap. 125. How to make casts in relievo, to adorn some parts of the picture.

There are many different ways of working in relief, therefore I will teach you some of them. With the same kind of gesso, or with a portion of stronger glue, you may cast heads of lions or of any thing, modelled in earth or in chalk. Oil the mould with lamp-oil (olio da brucciare), fill it with the gesso well diluted, and let it cool; then remove the gesso with the point of a knife, and blow (soffiare) it strongly. It will come out quite clean; let it dry. Afterwards, when ornamenting any thing with the same gesso, you must proceed in this manner, with the same gesso which you used for the ground, and with the same casts, first oiling the part with the pencil where the heads are to be fixed, then press them with the finger, and fix them in the usual manner. Afterwards, with a pencil of minever lay a coat or two of the same kind of gesso on the parts you mean to appear in relief, and which you have previously marked out. Afterwards remove with the knife any irregularities.

Chap. 126. How to put mortar (smaltare) on relievos on walls.

I shall also teach you how to raise designs in relievo on walls. In the first place, there are certain parts of the wall that are either circular or enriched with foliage, on which the mortar cannot be spread with the trowel. Take some lime and sand, both well sifted. Put them into a basin, and, with a large hog's-hair pencil, make them into a paste with water,

and apply several coats of this mortar with the same pencil on these places. Then polish the parts with the trowel, and the work will be done. You may paint on it in fresco or in secco, as I directed you when speaking of fresco painting.

Chap. 127. How to make relievos in lime on walls like relievos of gesso on pictures.

Grind a little of the before-mentioned lime on the stone, then make what parts you please in relief on the walls, as I have told you to do with regard to pictures, especially when the lime is rather fresh.

Chap. 128. How relievos may be cut out in stone, and how they may be used on walls.

You may also cut any devices you please on stone, then grease the design with lard. Procure some beaten tin, wet every part with a piece of tow, place the tin on the engraven stone, and beat it well with a mallet of willow as long as you can. Then provide some gesso grosso, ground up with glue, and fill up the moulds with it; you may use it to adorn walls, trunks, stones, or any thing you please; then apply the mordant to the tin, and, when it is a little tacky, cover it with fine gold. When dry attach it to the wall with pitch.

Chap. 129. How to execute relievos on walls with varnish.

You may also relieve on walls in this manner: Mix liquid varnish thoroughly with flour, and execute your relievos with the point of a pencil of minever.

Chap. 130. How to execute relievos on walls with wax.

In the same manner you may also make relievos on walls with melted wax and pitch mixed together—two parts wax

and the third pitch. Use it warm, and make your figures in relief with a pencil.

Chap. 131. How to lay bole on panels, and how to temper it (1).

Let us return to our subject. When you have finished the relievos of your picture, procure some Armenian bole, and try whether it be good. Touch your under-lip with it; if it stick to it, it is good. You must now learn the best tempera for gilding. Put the white of an egg into a very clean glazed porringer. Make some twigs of broom into a rod, and beat up the white of egg with it until the porringer is full of thick froth, which appears like snow. take a common drinking-glass, not too large nor too full of water; pour it on the white of egg into the porringer. Let it stand from night till the next morning, to clarify itself. Then grind the bole in this tempera as perfectly as you can. Next dip a clean soft sponge into clean water, and squeeze it dry; rub lightly with the sponge (not too wet) on those parts on which the gold is to be laid. Then pass over it, for the first time, with a large pencil of minever, a coat of this tempered bole as liquid as water, and, wherever the gold is to be used (having first sponged the part with water), spread the bole very evenly, being careful not to stop, so that you may leave no hard edges with your pencil. Then wait a little; put a little more bole into your porringer, and let the second coat of colour have a little more body. Give it this second coat, and let it again rest a short time; put more bole into the vase, and give it a third coat in the same manner, making no hard edges. Put more bole still into the vase, and give it a fourth coat, and then you will have finished laying on the bole. Now you may cover over your panel

with a cloth, to keep it as much as you can from dust, sun, and water.

# Chap. 132. Another mode of tempering bole on panels, and of gilding.

This tempera may be tempered in a different way. In order to grind the bole, put the whole white of an egg on the porphyry slab, and work the pulverised bole into the albumen. Grind it very fine, and, when it dries between your hands, add to it, while on the stone, a little clean water. When it is well ground, dilute it until it flow with the pencil like clean water, and give the panel four coats, in the manner above directed. Until you have had some little practice, you will find this a better plan than that first described. Cover your picture, and keep it well from dust, as I have told you before.

### Chap. 133. How to gild with verde terra on panels.

You may also adopt the same process as that used by the ancients, namely, to stretch linen over the panel before you lay on the ground (1), and then put on gold with verde terra, grinding the verde terra in either of the before-mentioned temperas.

### CHAP. 134. How to gild panels.

When the weather becomes damp and cloudy, and you wish to lay on any gold, place your panel flat on two trussels. Sweep it well with a feather, and, with a raffietto, pass very lightly over the ground of bole, and if you find any knots or roughness remove them. Burnish the bole very carefully with a piece of coarse linen. If you afterwards burnish it with a tooth, it cannot look otherwise than well.

When you have thus cleaned and burnished it, put into a glass nearly full of clean water a little of the white of egg tempera; if it be quite fresh so much the better. Mix it thoroughly with the water. Take a large pencil of minever, made, as I have previously taught you, of the hairs of the tip of the tail. Take up your fine gold with a pair of small pincers, lay it on a square piece of card larger than the piece of gold, and turned up at each corner, which you are to hold in your left hand, and, with the pencil which you hold in your right hand, wet the bole sufficiently to hold the piece of gold you have in your hand. Wet the bole equally, that there may not be more water on one part than on another: then let the gold slip off the card, taking care not to wet the card. Now, as soon as the gold has touched the wet part, withdraw the card quickly and suddenly; and if you perceive that the gold does not adhere to the panel, press it down as gently as you can with a piece of clean cotton, and in this manner gild the other parts of the panel; and when you wet it, preparatory to laying on the second piece of gold, be careful that the pencil does not go so near the first piece as to make it wet; and let the two pieces join, first breathing on it, that the gold may adhere where you wish it to unite with the other piece. When you have laid on three pieces, pass the cotton again over the first piece, and see whether any part requires mending. Provide a cushion as large as a brick, made of a smooth piece of board, covered with soft leather, very clean and not greasy, of the same kind as that of which boots are made. Stretch it very evenly, and fill the space between the wood and the leather with shreds of cloth; spread a piece of gold evenly on this cushion, and with a knife cut the gold into pieces as you want it, to make the necessary repairs. Wet the parts to be repaired with a minever pencil, and then, wetting the handle of the pencil with your lips, the piece of gold will adhere to it sufficiently to enable you to apply it on the part to be mended. When you have laid as much gold on the level surface as you can burnish in one day (for which I shall give you directions when you have to gild cornices and foliage), be careful to collect the small pieces of gold, as those masters do who are economical, so that you may save the gold as much as you can, being sparing of it, and always covering the gold you have laid on with a clean handkerchief.

#### Chap. 135. What stones are proper for burnishing gold.

When you mean to burnish gold you must procure a stone called lapis amatisto, which I will shew you how to prepare. If you have not this stone, sapphires, emeralds, balas rubies, topases, rubies, and granite, are still better for those who can afford the expense, and the finer the stone the better it is for the purpose. The teeth of dogs, lions, wolves, cats, leopards, and generally of all carnivorous animals, are equally good.

## Chap. 136. How to prepare stones for burnishing.

Procure a piece of lapis amatisto; take care to select one that is sound and without veins, and which is one entire crystal. Grind it on the grindstone, and make it very smooth and polished, and about the width of two fingers. Then take some of the dust of emeralds, and rub the stone until no inequalities remain. Round off all the corners, and put it into a handle of brass or copper, and let the handle be round and polished, so that the palm of the hand may rest well upon it. Then give it a lustre in the following manner:—Put some charcoal powder upon a porphyry slab, and rub the

stone on it exactly as if you were burnishing with it, and your stone will become firm, dark, and shining as a diamond. You must be careful not to break it, or to let it touch iron; and when you would burnish gold or silver with it, put it first into your bosom, to get rid of any dampness, which would soil the gold.

Chap. 137. How to burnish gold, and what to do if you cannot burnish it when ready for burnishing.

You must now burnish gold, for the time is come that you should do so. It is true that in winter you may gild whenever you please, during damp and cloudy weather, but not during dry weather. In summer it will take one hour to lay on the gold, another to burnish it; but should the weather be too damp, and, from some cause or other, you are unable to burnish it, keep it in a place where it is exposed to heat and air; but if it be too dry, keep it in a damp place, always covered; and when you would burnish it, uncover it carefully, for the smallest scratch will blemish it. Put it in a cellar at the foot of the casks, and it will be ready to burnish. But should you be prevented from burnishing it for eight or ten days, or a month, take a very clean handkerchief or a towel, lay it over your gold in the cellar, or wherever it may be; then take another handkerchief, dip it in clean water, wring and squeeze it very dry; open it, and spread over the first handkerchief that you laid over the gold, and the gold will then be in a proper state for burnishing.

Chap. 138. How to burnish gold, especially when laid on even surfaces.

Take your picture, or any thing on which you have laid gold. Place it level upon trestles, or on a bench. Take

your burnisher, rub it on your breast, or on any part of your clothes that is not greasy. Warm it well; then try whether the gold be fit for burnishing, by feeling it carefully. If you feel no powder under the stone, as you would feel powder between your teeth, sweep the gold with a minever's tail. Then burnish it gradually, first on one side and then on the other, with the stone; and if the scratching of the stone should break the surface of the gold (which should be as smooth as a looking-glass), take a piece of gold, and put it on the defective part, first breathing on it, and immediately burnish with the stone. And if it should happen that the surface of the gold be disturbed, so that you do not succeed well in burnishing it, you may remedy it in the manner I have just described; and, if you can afford the expense, you will add materially to the perfection of your work, and to your own honour, if you gild in this manner the whole of your ground (1). When it is properly burnished, the gold will appear brown, from its own brightness.

# Chap. 139. What gold, and of what thickness, is proper to be used for burnishing and mordants.

You should know that the gold proper to be laid on flat surfaces is that of which 100 leaves only are made from the ducat, and not that from which they make 145 pieces, because the gold for gilding flat surfaces requires to be dead gold (1). And if you would know good gold when you see it, purchase it of those persons who are good goldbeaters; and look at the gold, if it appear dull, like parchment (carta di cavretto), then consider it good. Cornices and foliage require thinner gold; and for the delicate fringes and ornaments laid on with mordants, the gold should be very thin indeed.

Chap. 140. How to form glories (volgere le diademe), shade the gold, and draw the outlines of the figures.

When you have burnished and completed your picture, you must take the compasses and turn the circles for the glories or crowns. Engrave (granare) them with lines and fringes on the edges, adorn them with stamped and sparkling ornaments, and, if there be foliage, mark the veins in it, and shade all with strokes (granare). Practice is necessary in this branch of the art. When you have thus formed the glories and ornaments, put into a glazed vessel a little biacca (white lead), well ground with some thin glue; and, with a small minever pencil, cover and mark over the outlines of the figures on the ground, as you find them marked out by the lines which you scratched with the needle, before you put on the bole. Again, if you would dispense with the biacca and pencil, scrape away the gold from the outlines of the figures, and this will be the best plan.

Chap. 141 (1). How to represent a cloth of gold, or black, or green, or of any colour you please, on a ground of gold.

Before you begin to colour, I should like to shew you how to make a cloth of gold. If you would have a mantle, or a woman's petticoat, or a little cushion, of cloth of gold, put on the gold-leaf with bole, and scratch the folds of the drapery in the manner I have formerly shewn you. Then, if you wish to make a red drapery, lay a flat tint of cinnabar upon the burnished gold. For the shading, use lake; for the lights, minium (red lead), all tempered with the yolk of an egg, without disturbing the surface or touching it too many times. Let it dry, and go over it at least twice. In the same manner you may make green or black draperies, if you please.

But if you would make a beautiful drapery of ultramarine blue, first lay a flat tint on the gold of biacca, tempered with the yolk of an egg. When it is dry, temper your ultramarine with a little glue, and a little yolk of egg, perhaps two drops. Pass it over the white two or three times, and let it dry. Then, according to the drapery you intend to paint, prepare your powders, by putting them into pieces of linen; make your design on paper, and then prick the design on the paper with fine needles, holding a piece of linen under the card; or you may prick the holes upon a board of poplar or lime, which is better than the cloth. When the holes are pricked, have your powders ready, according to the drapery which is to be powdered (spolverare). If the drapery be white, powder it with the powder of charcoal, tied up in a piece of linen. If the drapery be black, powder it with biacca, tied up in a piece of linen; and sic de singulis make your (paper) models so that they may do for either side (2).

Chap. 142. How to draw, to scrape up (grattare), and engrave (granare) (1) a drapery of gold or silver.

Having powdered your drapery, and procured a stiletto of birch or any strong wood, or bone, pointed like a proper stile for drawing at one end, and flat at the other (2), for scraping up (grattare), draw all the outlines of your drapery with the point of the stile, and, with the other end of it, scrape and scratch up the colour, so that the brilliancy of the gold may appear, but so as not to disturb the gold, and you may scrape up whatever you please, whether the ground or the pattern drawn on it (allacciato) (3); and whatever you uncover, you must afterwards engrave (grana) with the rosetta. And if, in certain parts, you cannot use the rosetta, you must use an iron point only, like a stile for drawing, and in this manner

you must begin to learn to make gold draperies. If you would make draperies of silver, you must proceed exactly in the same manner as you do in making gold draperies. I also recommend you, if you teach boys or children to gild, to let them begin by laying on silver, until they have acquired some practice, because silver is less expensive than gold.

- Chap. 143. How to make rich draperies of gold, or silver, or ultramarine blue, or of tin, gilded and laid on walls.
- 1. Again, if you wish to make a rich drapery of gold, you must ornament with foliage in relief, and attach precious stones to the drapery you intend to paint; then cover it with fine gold, and engrave (granare), and burnish it.
- 2. Ad idem. Cover the whole ground of the drapery with gold, burnish it, draw the drapery or other subjects on it. Then grain the ground, and afterwards the ornamental parts (lacci, cioè i lavori disegnati).
- 3. Ad idem. Gild the ground of the drapery, burnish it, and grain it in relief.
- 4. Ad idem. Gild the ground of the drapery, draw what patterns you please, lay on a flat tint of verdigris and oil (1), shade every fold twice, and then pass the colour evenly over the ground, and over the pattern drawn on it also.
- 5. Ad idem. Make the drapery of silver, draw your drapery when you have burnished it (for this you must always do), cover the whole ground of the drapery, or the pattern on it, with cinnabar, tempered with the yolk of an egg. Then, with fine lake, mixed with oil, go once or twice over the whole work as well as over the figures drawn on it.
- 6. Ad idem. If you would make a beautiful drapery of ultramarine, ground your drapery with burnished silver; draw your outlines; paint either the ground (campi) or the figures

drawn on it (*lacci*) with ultramarine, tempered with glue. Then spread the colour equally over the whole ground (*campi*), and over the patterns also (*lacci*), and it will look like a velvet drapery.

7. Ad idem. Lay on the ground. Draw the pattern of whatever colour you please, and shade it. Then take a fine minever pencil and the mordants. When you have powdered (spolverato) the draperies and the pattern on it (lacci) according to your intention, apply the mordants as I shall hereafter direct you. And with these mordants you may lay on gold or silver, and they will make beautiful draperies, if you rub and burnish them with cotton.

8. Ad idem. Having painted your drapery any colour you please, as I have before directed you, if you wish it to be a changeable drapery, work upon the gold with any colour you please, mixed with oil, to vary the colour of the drapery.

9. Ad idem. On walls make the ground of the drapery of gilded tin, cover it with any colour you please, powder it, paint a pattern on it, and scratch the drapery with the wooden stile, temper the colours with the yolk of an egg, and it will be a very good drapery for walls; but you may use mordants as well on walls as on pictures.

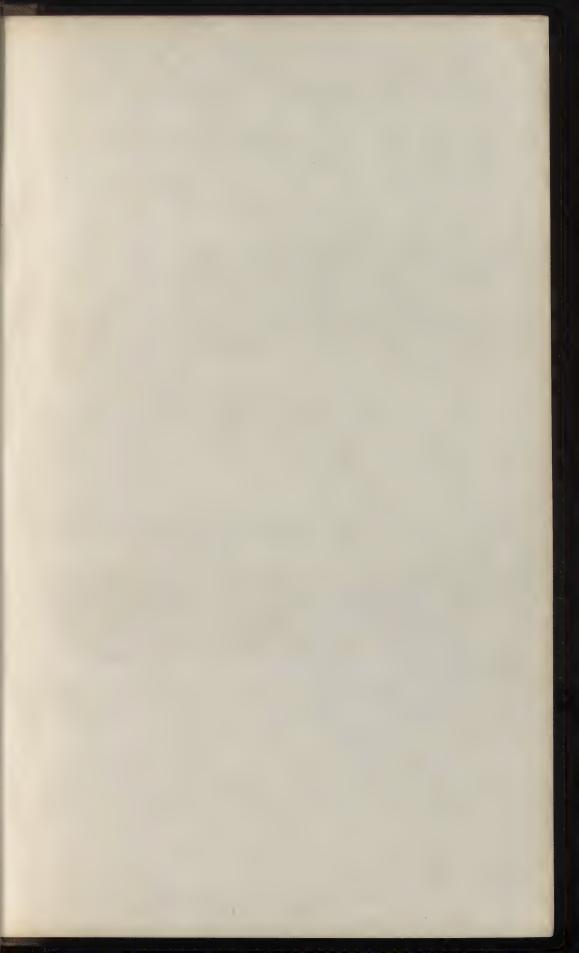
Chap. 144. How to imitate velvet or linen on walls, and also silks on walls or pictures.

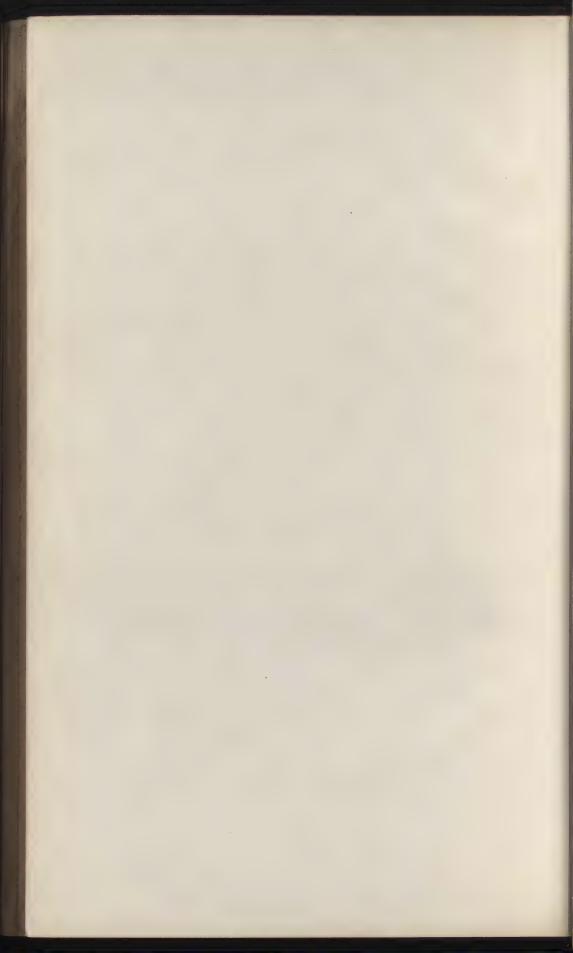
If you would imitate velvet, paint the drapery of any colour you please, tempering your colour with the yolk of egg. Make the down on the velvet with a pencil of minever with colour tempered with oil. Imitate the pile of the velvet. And in this manner you may imitate red, black, or any other coloured velvet, tempering your colours as before. Sometimes it is necessary to shew on a wall the wrong side





Trigin and Child, by Corregger. I'm the Petuse called the Madenna set Congle justhe Music Borbonico. at Naples.





of a garment or drapery which appears to be made of linen. And to imitate this, when you have laid on the mortar, smoothed and coloured it (except what you are now going to do), provide a small stick, and then sprinkling water with the pencil on the part, move it round with the stick. The lime will become rough and ill polished. Let it remain so. Colour it as it is without being smoothed, and it will appear like real linen.

Ad idem. If you would make a silk drapery either on pictures or on walls, lay on the ground with cinnabar, and over that minium; use dark and light sinopia, or cinnabar, and giallorino on walls; and on pictures, orpiment, or green, or any colour you please. Lay the ground dark, and finish it with the light colour.

Ad idem. On walls in fresco. Lay on a ground of indigo, and finish with indigo and bianco sangiovanni mixed together. And if you would use these colours on pictures or in heraldic painting, mix indigo with biacca, tempered with glue; and in this manner you may make many kinds of drapery, according to your abilities and inclination (1).

## CHAP. 145. How to colour pictures, and to temper the colours.

I think that with the instructions I have given you, combined with practice, your good understanding will enable you to teach yourself to paint skilfully many kinds of drapery. And now, by the grace of God, I should like to teach you to colour pictures (1). You must know that painting pictures is the proper employment of a gentleman; and that with velvet on his back, he may paint what he pleases. It is true that pictures are painted in the same manner as paintings in fresco, with three exceptions (2). One is, that you must always paint the draperies and buildings before the faces.

The second is, that you must temper your colours properly with yolk of egg, always putting as much of the yolk as of the colours which you would temper with it. The third, that the colours must be ground very fine, like water (that is, to an impalpable powder). And in order to give you pleasure, I will begin by describing the painting of a drapery of lake, in the same manner as that I taught you in fresco painting, namely, to leave the first gradation of pure colour, and take two parts of lake and one of biacca. And of this, when tempered, make three gradations, but little varying from each other; temper them well, and make them lighter with biacca, finely ground. Then take your panel before you, and always keep it covered with a cloth to preserve the gold and the ground from being soiled by the dust; likewise wash your hands very clean. Then take a pencil of minever without a point, and begin to lay on the dark colour, and make out the shadows in what should be the dark part of the figure. Then in the usual manner take the middle tint, and paint the backs and relievos of the dark folds, and advance with the same towards the shades of the parts in relief, towards the light part of the figure. Then with the lightest colour paint the relievos and backs of the light part; and in this manner return to the first dark folds of the drapery with the dark colour. And thus, as you have begun, go many times over with these colours, painting and uniting them skilfully, and softening them tenderly. And now it is time to leave your work and to rest yourself for a short space, and then return to the work you have in hand. You should always take pleasure in your work. When you have covered the ground properly with these three gradations of colour, take the lightest, and prepare another still lighter, always washing the former colours from the pencil. Make another colour still lighter than this, and let them vary but little from each other. Then touch with pure white, tempered as above, on the high lights; and thus paint the shades one after the other, in regular gradation, until they reach the deepest shades: of these you are to make two gradations, and put them in different vases that you may not mistake one for the other. And in this manner you may paint drapery of any colour you please, either red, or white, or yellow, or green. But if you would make a beautiful purple (bisso) colour (3), take fine lake and the best ultramarine blue, finely ground, and of this mixture, with biacca, properly tempered, make your gradations of colour. If you would make a light blue colour, add white (biacca), and paint it in the manner above described.

# Chap. 146. How to paint draperies of blue, gold, or purple.

If you would make a blue drapery, neither too light nor too dark, take several shades of ultramarine, of which there are many, one lighter than the other. Colour them according to the lights and shades of the figure, in the manner I have shewn you. And you may paint on walls in the same manner in secco. And if you cannot afford the expense of using ultramarine, you may use azzurro della magna (German or cobalt blue); or if you choose to make the drapery of gold, you may do so, putting a little purple (bisso) both on the shades and on the lights, touching lightly on the gold, and so making out the folds. These draperies will please you much, particularly in the draperies in which you paint God (1). If you would clothe our Lady in a purple drapery, paint the drapery white, and shade it with a very light purple but little removed from white; or make the drapery

of fine gold, and shade it with a little dark purple. This will be a beautiful drapery.

Chap. 147. How to colour faces, hands, feet, and flesh generally.

Having drawn and coloured draperies, trees, buildings, and mountains, you should next colour flesh, which you should begin in the following manner. With a little verde terra and biacca tempered well together, go twice over the face, hands, feet, and all the naked parts. But this first tint of colour (cataletto) must, when painting the faces of young persons with fresh complexions, be tempered with the yolk of a town-laid egg; because high-coloured yolks of eggs, laid by hens fed in the country, are only fit to colour faces of old and dark persons. Now bear in mind, that when painting on walls you made your rosy tints (rossette) with cinabrese; but when painting pictures, you must use cinnabar; and the first rosy tints must not consist of pure cinnabar, but you must add a little white (biacca) to it, and also to the verdaccio with which you first shade it. You must prepare, as you did in painting on walls, three gradations of flesh-colour, one lighter than the other, laying every tint in its right place on the proper part of the face, taking care not to cover over the whole of the verdaccio, but shading partially on it with the darkest flesh-colour (which must be very liquid), and softening off the colour in the tenderest manner. Pictures require to be covered with more coats of colour than walls, yet so that the green tint under the flesh-colour should just be visible through it. When you have painted your flesh-colours, and the face begins to look well, make a flesh-tint still lighter, and paint the prominent parts of the face, putting on the lights in the most delicate manner, until

you touch the highest lights over the eyebrows, and on the tip of the nose, with a little pure white. Paint the outlines of the upper eyelids with black, also the lashes and the nostrils. Then take a little dark sinopia with a little black, and make the outlines of the nose, eyes, eyebrows, hair, hands, and feet, and generally of every part, as I directed you when painting on walls, always tempering the colours with the yolk of an egg.

Chap. 148. How to colour a dead man, his hair and beard.

Now we shall speak of colouring a dead man, —that is to say, his face, his body, or any naked part that may be visible, either on pictures or walls; except that on walls you need not first lay a tint of verde terra. If it be laid on the halftints, between the lights and shades, that will be sufficient. But for pictures you must lay it on in the mode I have directed for colouring living faces, and also shade it in the same manner with verdaccio. You must use no rosy tints (rossette), because dead persons have no colour; but add a little light ochre to your three gradations of flesh-colour with white, and temper in the usual manner, laying each tint in its proper place, and softening them into each other as well on the face as on the body. And in the same manner, when you have nearly covered your ground, make the lightest flesh-tint still lighter, reducing it to pure white, as you did when painting the face of a living person. Then mark the outlines with dark sinopia, mixed with a little black, which is called sanguine; and in the same manner the hair (but so that it shall appear to be that of a dead person), with several shades of verdaccio. I have shewn you how to paint several kinds of beards on walls, these you may adopt on pictures; and when you have to paint the

bones of Christians or other rational creatures, make them of the flesh-colour (*incarnazioni*), as I have above directed you.

Chap. 149. How to paint a wounded person.

Having to paint a wounded person, you must lay a tint of pure cinnabar wherever the blood is to appear. Then glaze and shade this and the drops of blood with fine lake, tempered in the usual manner.

Chap. 150. How to colour water, or a river, with or without fish, on walls or on pictures.

When you would paint a river or any other water, either with or without fish, on walls, or on pictures, -for walls, take the same verdaccio with which you shaded faces on the lime (calcina), draw the fish, and shade them with the verdaccio: but I must inform you that fish, and irrational animals generally, have their dark parts upwards, and their light parts beneath. When you have finished shading with the verdaccio, whiten them beneath with bianco sangiovanni on walls, on pictures with biacca, and then pass some touches of the same verdaccio over the fish and the water. If you would make a variety in your fish, let some have spines on their backs. In secco and on pictures lay a tint of verdigris, ground in oil, over the water; or if you do not choose to use oil, take verde terra, or verde azzurro, and cover every part equally, not making the tint so dark but that you may see the fish and waves of the water. And if it be required to put the lights on the water, use bianco on walls, and tempered biacca on pictures. This is sufficient information to you on colouring. We shall now proceed to the art of embellishing. But we must first speak of mordants.

Chap. 151. How to make good mordants to put on gold draperies and ornaments.

A perfect mordant for walls, pictures, glass, iron, and every other thing, may be as follows (1). With your oil (either boiled on the fire, or baked in the sun, in the manner before directed) grind a little biacca and verdigris; and when you have made it flow like water, add a little varnish, and boil all together for a short time. Take a glazed vessel, pour it in, and let it stand. When you use it either for draperies or ornaments, put a little into a vase. Then make a pencil of minever, very firm and pointed, introduce it into the quill of a dove or a hen, and let the point project but very little. Dip the tip only into the mordant, and make your ornaments and fringes; and do not load the pencil too much, because your strokes should, when well done, be as fine as hairs. Then wait until the next day. Try it with the ring-finger (2) of the right hand. If it be then a little tacky, take the pincers, cut off half a piece of fine gold, or common gold, or silver (though the last is not durable), and lay it on the mordant. Press it with cotton. Then, with the same finger, raise the piece of gold, and lay it on the mordant where you find none. Do not use any other finger of the hand, because this is most convenient; and let your hands be always clean; and I must tell you, that gold which is put on with mordants, especially in very fine works, should be the thinnest beaten gold that can be procured, and that if it be thick, you cannot use it so well, unless the whole ground is to be covered with it. If you like, you may let it remain another day. Then take a feather and brush it off; and if you choose to preserve the gold you brush off, do so, it will be useful to goldsmiths, or in other works. Then burnish your gold fringes with clean and new cotton.

Chap. 152. How to temper this mordant so as to put the gold on more quickly.

If you wish to keep the above-mentioned mordant for eight days, do not put any verdigris with it before you lay on the gold. If you wish to keep it for four days, put a little verdigris. If you wish to keep it only from one day to another, put to it plenty of verdigris and a little bole. And if any one blame you for using the verdigris on account of its contaminating the gold, tell them that I have tried it, and that it does not injure the gold.

Chap. 153. How to make another mordant with garlic, and when it is proper to use it.

Another mordant may be made in this manner. two or three clean cloves of garlic; pound them in a mortar. Strain them through linen two or three times; grind up as fine as possible a little biacca and bole with the juice; collect it, and put it into a vase, cover it up, and preserve it; the older it is the better. Do not choose young cloves of garlic, but those about half grown. And when you would use this mordant, put a little of it into a glazed pipkin, with a little urine, and stir it well with a skewer until it become sufficiently liquid to flow with the pencil. With this mordant you may lay on gold in the course of half an hour. And it has this property, that you may lay the gold on it in half an hour, an hour, a day, a week, a month, a year, or any time you please. Keep it well covered, and free from dust. This mordant is not proof against water or the damp of churches when laid upon bricks; but it may be used with propriety on pictures, or on iron, or on any thing which is to be afterwards varnished with liquid varnish. It will be sufficient for you to know how to make these two different kinds of mordants.

#### Chap. 154. Of varnishing.

I think I have said enough on the subject of painting on walls in fresco, in secco, and on pictures. But we shall add, by way of supplement to painting and gilding, a few words on miniature-painting on paper. But first, let me shew you how to varnish pictures and other works, except walls.

#### Chap. 155. How and when to varnish pictures.

You must know that the longer you delay varnishing your picture after it is painted, the better it will be. And I speak truth when I say, that if you delay for several years, or at least for one year, your work will remain much fresher. The reason of this is, that the colouring naturally acquires the same condition as the gold, which shuns a mixture with other metals; so the colours when mixed with their proper tempera dislike the addition of other mixtures to their own tempera. Varnish is a strong liquor (1), which brings out the colour (e dimostrativo), will have every thing subservient to it, and destroys every other tempera. And suddenly, as you spread it over the picture, the colours lose their natural strength, and are powerfully acted upon by the varnish, and their own tempera has no longer any effect upon them. It is therefore proper to delay varnishing as long as you can; for if you varnish after the tempera has had the proper effect on the colours (2), they will afterwards become more fresh and beautiful, and the greens will never change (3). Then take liquid and clear varnish, the clearest you can obtain; place your picture in the sun; wipe it as clean as you can from dust and dirt of every kind. And varnish it when there is no wind, because the dust is subtle and penetrating; and every time that the wind blows over your picture you will have

more difficulty in making it clean. It will be best to varnish it in a green meadow or by the sea-side, that the dust may not injure it. When you have warmed the picture and the varnish also in the sun, place the picture level, and with your hands spread the varnish well over the surface. But be careful not to touch the gold with it, for varnish and other liquors injure it. If you do not choose to spread the varnish with your hand, dip a piece of clean sponge into the varnish, and spread it over the picture in the usual manner. If you wish the varnish to dry without sun, boil it well first, and the picture will be much better for not being too much exposed to the sun.

Chap. 156. How in a short time you can make a picture look as if it had been varnished.

If you would have your picture appear in a short time to have been varnished when it has not really been varnished, take the white of an egg, beat it thoroughly until it form a froth. Let it stand one night to clear itself. Put the clear part into a clean vessel, and spread it with a minever pencil over your work, which will appear as if varnished, and will be durable. This varnish is applicable to detached figures either of wood or stone. In this way you may varnish the faces, hands, and flesh, of such figures generally (1). And this is enough for you to know about varnishing. We will now speak of painting miniatures on paper.

Chap. 157. How to paint miniatures and put gold on paper.

If you would paint miniatures, in the first place you must draw with a lead-pencil (piombino) figures, foliage, letters, or whatever you please, on paper,—that is to say, in books; fix the outlines of what you have drawn with a

pen. Then you must have a kind of plaster (gesso), called asiso (1), made in this manner; namely, a little fine plaster (gesso) and a little biacca—less than the third part is to be of gesso; then add some sugar of Candia, less in quantity than the biacca; grind these ingredients perfectly with clean water, scrape them together, and let them dry in the shade. When you wish to put on gold with this mixture, cut off a piece as large as you want, and mix it thoroughly with the white of an egg, well beaten, as I have before directed you. Temper it with this mixture. Let it dry. Then take your gold, and either breathe on it, or not, as you please, when you put it on. When your gold is laid on, burnish it immediately with your burnisher, and place your paper upon a firm table of good wood, well polished. And you must know that you may write letters with a pen dipped in this size, or lay a ground of it, or whatever you please—it is excellent. But before you lay on the gold, see whether it be necessary to clean, or make the surface even with the point of a knife, lest your pencil should put more on in one place than in another. Be very careful to avoid this.

### Chap. 158. Another way of laying gold on paper.

If you would make another kind of asiso (this is not so good as the other sort, but may be used to lay on grounds of gold, though not to write with), take gesso sottile (see ante, chap. 116), and a third part biacca, a fourth part Armenian bole, with a little sugar. Grind all these well with the white of an egg. Lay on the ground in the usual manner, and let it dry. Then, with the point of a knife, scrape and clean the gesso. Put the before-mentioned table or stone, very level, under the paper, and burnish it; and should it happen not to be burnished well where you put on

the gold, wet the gesso with clean water with a minever pencil, and when it is dry, burnish it.

Chap. 159. Of a colour like gold which is called porporina, and how it is made.

I will shew you how to make a colour like gold, which is a good colour for miniature-painters on paper, and also on pictures, if they would use it (but beware of using this colour as you would of fire), it is called porporina (1). Do not let it approach a gold-ground. I warn you, if you were to put it on a ground of gold which reached from hence to Rome, if a piece of quicksilver as large as a grain of millet were to touch the gold-ground, it would be sufficient to spoil it. The best remedy you can possibly have, is, with the point of a knife or a needle to make a scratch on the gold, and to go no further on This porporina is made as follows: - Take salt orminiaco (armeniaca), tin, sulphur, and quicksilver, of each equal parts, except that there must be less quicksilver. Put these things in a vessel of iron, copper, or glass, melt the ingredients on the fire, and it is done. Then temper with the white of an egg and gum, and use it as you please. If you make draperies with it, shade with lake, or azure, or purple, always tempering your colours on paper with gum arabic.

Chap. 160. How to grind gold and silver, and how to temper them to make foliage and other embellishments, and how to varnish verde terra.

If you would work with gold on pictures, paper, or walls, or on any thing you please (but not lay it on flat, as in grounds of gold), or if you paint trees which should appear like trees of paradise, take pieces of fine gold sufficient for the work you are going to paint or to write,—that is to say,

about ten or twenty pieces, put them on the porphyry-slab, and grind them with the well-beaten white of an egg (1), then put the whole into a glazed vessel. Put sufficient tempera to make it flow with the pen or pencil, and you may do any work you please with it. You may also grind it with gum arabic for use on paper; and if you make leaves of trees, mix with the gold a little green very finely ground for the dark leaves.

And in this manner, mixing the gold with other colours, you may change them at your pleasure. With this kind of gold, silver, or base gold (oro di metà), you may make antique draperies and certain ornaments which are not used by many other painters; yet, if you paint them well, they will increase your reputation. But you must adopt what I teach you with great judgment and skill.

There are some persons who will require you to use greens on pictures and to varnish them. I tell you that it is not the custom, and that verde terra does not require it; but people will please themselves. Now, adopt this method: take parchment-shavings, boil them sufficiently with clean water to form a glue, then with a large minever pencil pass two or three times very lightly over the picture generally, wherever you mean to varnish it. When you have given two coats of the glue, which must be very clean and bright, and which you must strain twice, let your work dry for the space of three or four days. Then you may pass your varnish safely over the whole, and you will find that verde terra will take varnish as well as other colours.

Chap. 161. How, having painted a human face, to wash off and clean away the colours.

Sometimes, in the course of your practice, you will be

obliged to paint flesh, especially faces of men and women (1). You may temper your colours with yolk of egg; or if you desire to make them more brilliant, with oil, or with liquid varnish, which is the most powerful of temperas. But should you wish to remove the colours or tempera from the face, take the yolk of an egg, and rub a little of it at a time on the face with the hand. Then take clean water that has been boiled on bran, and wash the part with it; then take more of the yolk of egg, and rub it again on the face; and again wash it with the warm water. Do this many times until the colour be removed from the face. We will say no more on this subject.

Chap. 162. Why women should abstain from using medicated waters on their skin.

It sometimes happens that young ladies, especially those of Florence, endeavour to heighten their beauty by the application of colours and medicated waters to their skin. But as women who fear God do not make use of these things, and as I do not wish to render myself obnoxious to them, or to incur the displeasure of God and our Lady, I shall say no more on this subject. But I advise you, that if you desire to preserve your complexion for a long period, to wash yourself with water from fountains, rivers, or wells; and I warn you, that if you use cosmetics, your face will soon become withered, your teeth black, and you will become old before the natural course of time, and be the ugliest object possible. This is quite sufficient to say on this subject.

Chap. 163. Shewing how useful it is to take casts from the life.

I think I have said enough on colouring of all kinds. I

will now touch upon another subject, which is very useful in drawing from nature, and similar things (and which contributes greatly to design); this is called taking casts (*improntare*).

Chap. 164. How to take a cast of the face of a man or woman.

Would you take a cast of the face of a man or woman. and in any position? Then adopt this mode. Let a young man, or woman, or an old man, come to you, and let the beard be shaved; for the hair and beard are difficult to do. Then with a large minever pencil anoint the face with some oil of roses, or other odoriferous oil, put on the capo, berretta, or cappuccio (1), and provide a band, about a span wide and as long as from one shoulder to the other, surrounding the top of the berretta; and sew the edge of it round the berretta from one ear to the other. Put into the holes of each ear a piece of cotton, and draw over them one end of the band, which you are to sew to the beginning of the collar; and give half a turn to the middle of the shoulder, and return to the buttons in front. Do the same to the other shoulder, then unite the ends of the band. done this, place the man or woman flat on a carpet, a desk, or a panel. Provide a hoop of iron, of the width of one or two fingers, with some teeth on the inside, like a saw. Put this hoop, which is to be two or three fingers longer than the face, round the face of the person; let it be held by your associate, suspended from the face, that it may not touch the face of the person. Take the band, and turn it round and round, putting the end of it, which had not been sewn, into the teeth of the hoop; and then confine it between the flesh and the hoop, so that the hoop shall be beyond the band, and leave about the width of two fingers or less between the band

and the flesh, according to the distance you wish the paste to extend. You will now have to make the cast.

Chap. 165. How to enable a person from whose face a cast is being taken to breathe.

You must get a goldsmith to make two small tubes of brass or silver, which are to be round above and more open at one end than at the other, like a trumpet, each about a span long, and as large round as a finger, made as light as possible. The other end must be made the same shape as the nostril; but just so much smaller as to enter the nostrils without leaving any vacant space between them. Let a small hole be pierced through the middle of each, and bind them together.

Chap. 166. How to take a cast of the living face in plaster (gesso); how to remove and preserve it, and to take a cast from it in metal.

Having done this, and the man or woman still lying down, put these tubes into the nostrils, and let the person hold them himself with the hand. Have ready some gesso bolognese, or volterrano (1), fresh burnt and sifted. Have some cold water near you in a basin, and put some of it quickly upon the plaster. Make haste, for it soon sets, and let it be neither too thick nor too thin; with a drinking-glass put some of this composition over the face. When you have covered it equally, except the eyes, which you are to cover last, let the mouth and eyes be closed, but not forcibly (for which there is no necessity), but as if in sleep. When you have filled the whole space about a finger's depth, let it rest a short time until it be set; and remember, that when you are taking a cast of a person of high rank, such as a lord, a king, a pope, an emperor (2), you should stir into the plaster rose-water as

well as cold water; but for other persons it is sufficient to use cold water, from fountains, rivers, or wells, only. Your composition being set and dry, detach it gently with a palette knife, penknife, or scissors, from the band which you sewed round it; draw the tubes gently from the nose; let the person rise, and either sit or stand, while you hold the composition which is still on the face with your hands, and gently remove the mask from the face. Put it away, and preserve it carefully.

This process being completed, procure a child's girdle, and put it round the cast, in such a manner that the girdle shall project about the width of two fingers beyond the edge of it. With a large minever pencil oil the inside of the cast with any oil you please, and with all possible diligence, lest any accident should happen to it. Wet the plaster as before, and, if you like to add a little pounded brick to it, it will be an improvement to it; and then, with a glass or porringer, put some of it into the cast, which should be placed upon a bench, so that while you are filling it with the plaster, you may strike with the other hand upon the bench, in order that the plaster may enter equally every part of the cast, as the wax does into a seal, and be free from bubbles.

When the cast is full, let it rest for half a day, or one day at most. Then with a hammer proceed cautiously to break the outside cast, that is, the first form you made, in such a way as not to break the nose or any other part; and that you may do this the more easily, before you fill it, saw it nearly through in several places on the outside, but do not let your saw pass through it. When you have filled it, you can easily break it with a slight blow from the hammer. In this manner you may obtain the effigy, physiognomy, or cast of any person of rank. And you should know, that when

you have made the first form, you may make a cast of it in copper, brass, bronze, gold, silver, lead, and generally of any metal you please; nevertheless, you should study under masters who understand the melting and casting of metals.

Chap. 167. How to take a cast of the whole figure of a man or woman, or an animal, and to make a cast from a model in metal.

You must know that the above-mentioned mode is that adopted by the first masters. I must also inform you that you may take a cast of the whole figure, like the naked antique figures, of which so many remain. You must select some naked man or woman, and let the person stand upright in a sort of box or case, which will reach as high as a man's chin, and let the case be joined together at the sides lengthways. Let a very thin copper plate be placed against the shoulders, beginning at the ear, and reaching to the bottom of the case, and bind it with a cord to the naked person, so as not to injure or press into the flesh. Then let the copper plate be fixed above the edge, where the case is joined. Cut four copper plates like this, and join them together, like the edges of the case. Then grease the naked person, put him directly into the case, mix a large quantity of plaster with cold water, and take care to have an assistant with you; and while you pour the plaster into the case in front of the man, let the assistant fill the back part at the same time, so that it may be filled to his throat: with regard to the face, you may do that at another time, as I have told you before. Let the plaster rest until it be quite set and dry; then open the case where it is joined, separate the edges of the case from the copper plates with chisels, and open it as you would a nut, holding on all sides the pieces of the case and of the cast

you have made. Withdraw the naked person very gently from it, wash him quickly with clean water, for his flesh will be as red as a rose. In this manner, when you have filled the surface of the mould, you may make a cast of any metal you please; but I recommend you to make it of wax, for this reason, that the paste may be broken without injury to the figure, for you may remove it at any time, and make any repairs that you find necessary. You may then join the head to it, and the whole being joined together, you may make a cast of the whole person or of any particular member. You may, for instance, take a cast of an arm, a hand, a foot, a leg, a bird, a beast, or any kind of animal or fish. But the animals must be dead, because they have neither sense nor firmness to stand still.

# Chap. 168. How to model from the life, and then take casts in metal.

You may also make a model of a person in this manner: take a quantity either of paste or wax, well stirred and clean, of the consistence of ointment, and very soft; spread it on a large table, a dinner-table for instance. Set it on the ground; spread the paste on it to the height of half a braccio. Throw yourself upon it in any attitude you please, either forward or backward, or on one side. And if this paste take the impression well, you must extricate yourself from it dexterously, so as not to disturb it. Then let the mould dry. When dry, you may fill it with lead. Do the other side of your person (the opposite side to that which you have done) in the same manner. Then join them together, and fill them both with lead or other metal.

# Chap. 169. To make casts of small figures in lead, and to multiply plaster-casts.

If you would make casts of small figures in lead or other metal, oil your figures, take impressions in wax, and fill them up with any thing you please. It sometimes happens that on pictures it is necessary to make some relievos, such as heads of men, or lions, or other animals, or small figures. Let the impression that you have made in wax dry; then oil it well with salad or lamp-oil. Procure fine or coarse plaster, ground up with rather strong glue. Fill the mould with this warm plaster, and let it cool. When cold, separate a little of the plaster from the casts with your knife. Blow very hard upon the divided part (spartito). Take up your figure with your hand, and it is done. And in this manner you may make casts. Preserve them, and remember that they are better made in winter than in summer.

# Chap. 170. How to make impressions of coins in wax or paste.

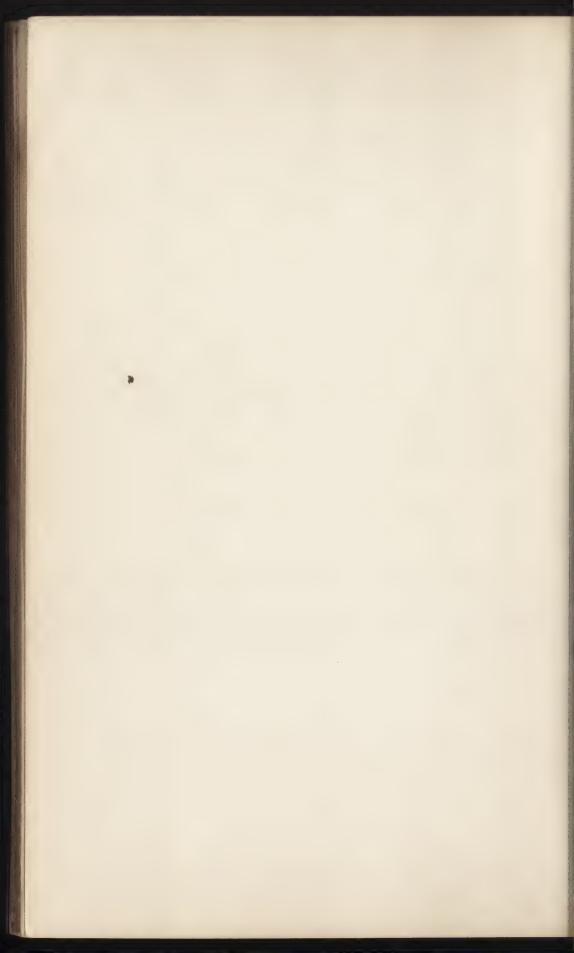
You may, if you please, take impressions of coins in wax or paste. Let them dry, then melt some sulphur, and fill them with it, and they will be done; and if you would make them of paste only, add to the paste some ground minium, that is to say, some of the dry powder with the paste, and make it of the proper consistence.

# Chap. 171. How to take impressions of a seal, or money, with a paste made of ashes.

If you would take very perfect impressions of a seal or ducat, or any other money, adopt this mode, and set great value on it, for it is an excellent method. Take a pipkin half full of clean water, or quite full, if you please. Take half a porringer full of ashes. Throw them into the pipkin, and stir them with the hand. Let the mixture rest a little, and, before the water becomes quite clear, throw it into another pipkin; do this several times, and I recommend you to put in what ashes you want at the first. Then wait until the water be quite clean, and the ashes settled at the bottom. Draw off the water, and dry the ashes in the sun, or as you please. Then add to it salt dissolved in water, and make, as it were, a paste with it (1). Then make impressions of seals, money, small figures, or generally of any thing of which you desire impressions. This done, let the paste dry gradually without fire or sun. You may pour on this paste melted lead, silver, or any metal you please, for the paste is sufficiently tenacious to bear a great weight.

#### CONCLUSION.

Praying that the most high God, our Lady, St. John, St. Luke the evangelist and painter, St. Eustachius, St. Francis, and St. Anthony of Padua, may give us grace and strength to sustain and bear in peace the cares and labours of this world; and that to those who study this book, they will give grace to study it well and to retain it, so that by the sweat of their brows they may live peaceably, and maintain their families in this world with grace, and finally, in that which is to come, live with glory, for ever and ever. Amen.



# NOTES TO THE WORK.

# Снар. 1.-Р. 1.

(1)—Vasari gives to this passage a figurative meaning. I, however, think it literal, Giotto having taken away some of the defects of the modern Greek style, and formed a Latin, -that is to say, an Italian school.—Tambroni. Or rather, as Vasari says (vol. iii. p. 10), created a new style, which he called "the manner of Giotto," because it was adopted by him and his disciples, and was afterwards universally esteemed and imitated. He did away with the harsh outline, the staring eyes, straight feet, and pointed hands, with the want of shadow, and other defects of the Greeks, and gave a graceful turn to the heads, and a more natural colouring to the flesh. Giotto particularly disposed his figures in better attitudes, and was the first who gave an appearance of vivacity to his heads, and a more natural flow to his draperies, than those who had preceded him. He shewed some knowledge of perspective and foreshortening, and was the first who endeavoured to express the passions in his figures. See Vasari's Life of Giotto.

To this eulogy of Vasari we shall add an extract from a Ms. of Giambatista Belli, in the *Megliabechiana*, quoted by Rosini (*Storia della Pittura*, vol. ii. p. 65), who concurs in the sentiments therein expressed.

"Giotto became a most excellent master in painting; and his fame was so great, that it was publicly said that he had revived the art of painting after the ancient manner. And the reason of this was, that having abandoned the rude and unscientific manner of the Greeks, he represented objects more naturally, adding to them grace and beauty; he was wonderful in composition, diligent in colouring, fertile in invention, a careful searcher after truth, and a great imitator of nature. And, among other things, we observe this (which is a great beauty in his pictures), that all his figures appear to do what is becoming to them. Those which are in sorrow appear melancholy; the joyful appear merry; those who are afraid look fearful; and, with the exception of Michael Angelo Buonarroti, I have not observed that any one has succeeded better in the expression of the passions."

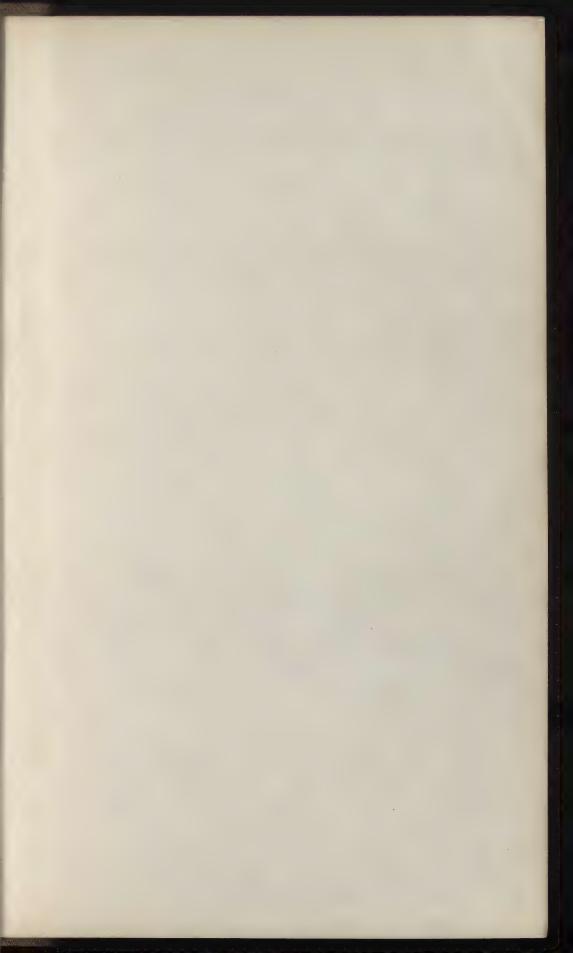
"To these qualifications the Florentine master (Giotto) added facility of execution, by which his pictures seemed to spring from the movement of his pencil without fatigue or labour; and grace, without which the Greeks said beauty itself would be but an empty name. As to his colouring, to which neither Vasari nor Lanzi allude, those learned in the art have agreed that he possessed the merit not only of having totally abandoned the raw and blackish tints of the Greeks, but of having introduced into his pictures a placid harmony, and much of the softness of nature, especially in those which he painted on wood and in distemper." Rosini, vol. ii. p 15.

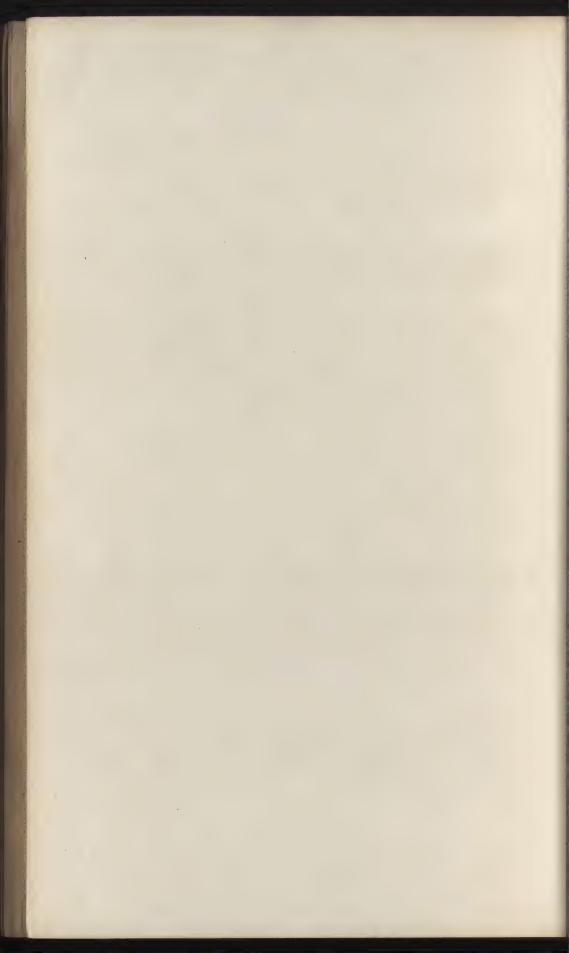
Some of the paintings of Giotto may still be seen in the principal church at Assisi. Rosini adds, that his greatest merit consisted in being the restorer of painting in Europe after the Greeks and Romans; and his greatest glory, in obtaining from posterity the acknowledgment that the praise of Dante did not appear the effect of favour, but of justice.

"Credette Cimabue nella pittura

Tener lo campo, ed ora ha Giotto il grido;
Sì, che la fama di colui oscura."

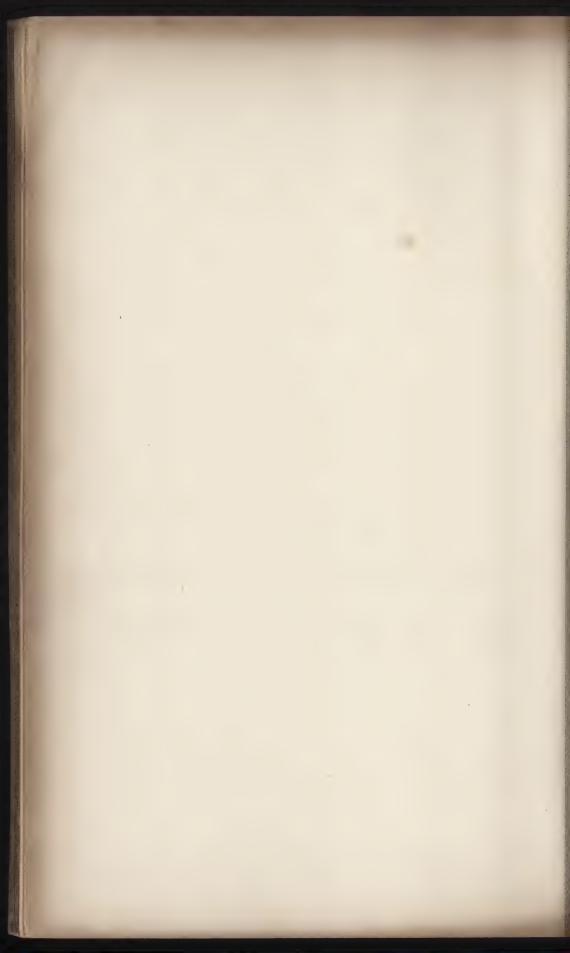
In Plate VI. is represented an outline of a portrait of this great Italian poet, from a picture by Giotto, discovered at Florence in the pantry of the prison, which was formerly the chapel of the Podesta. It is referred to by many writers of Italy as the "lost" portrait. It was covered over with plaster of Paris, but is in good preservation. The countenance is pleasing and majestic, free from

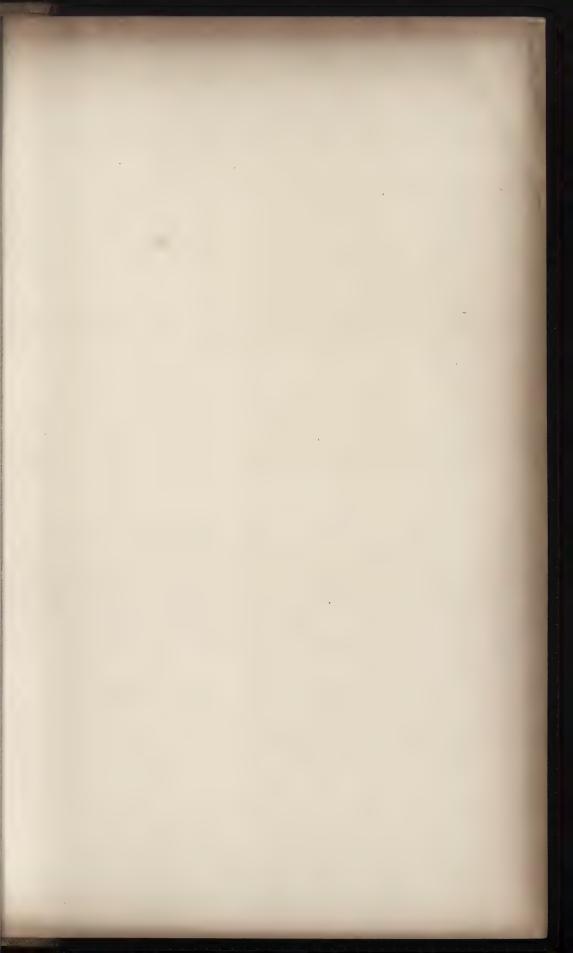






The Sost Portrait of Dante. Painted by Giotto in the Ancient Chapel of the Poderta at Florence

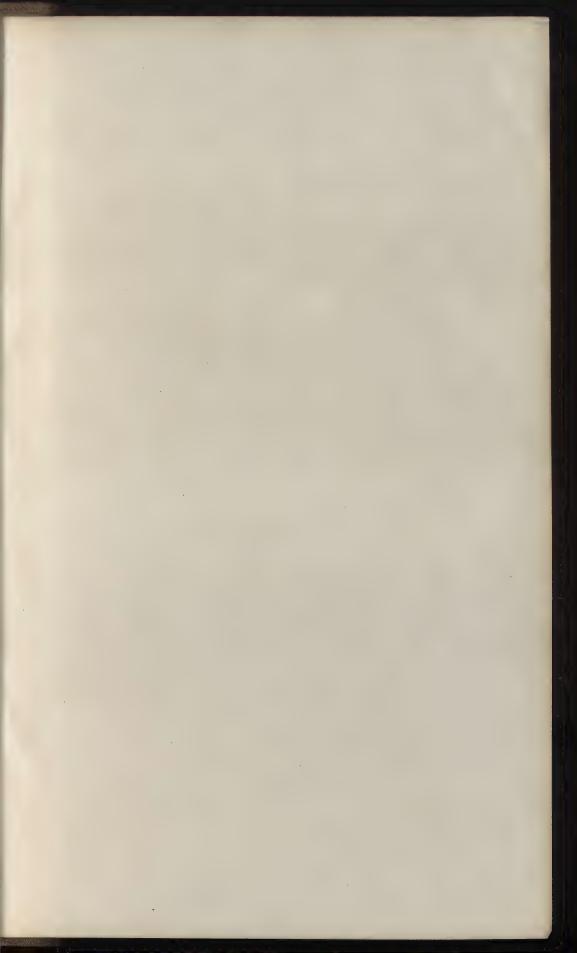


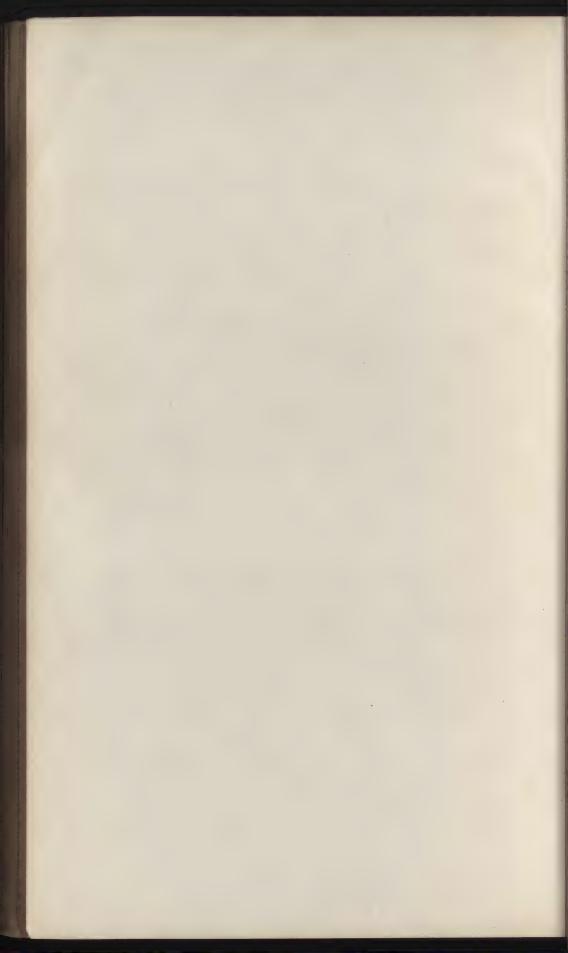




Firgin and Childs.

The ted by Faddie Gadde in the Cloisters of A Francisco
uno remend to the Finne Santo it Fra





that expression of severity which characterises most of the portraits of Dante.—Note by Translator.

Taddeo Gaddi, the son of Gaddo Gaddi, was the favourite disciple and godson of Giotto, with whom he remained until the death of the latter in 1336. As he lived with Giotto twenty-four years, it is probable that he assisted in the most famous works of that master. "Lanzi calls him the Giulio Romano of that school (see Rosini, vol. ii. p. 15); and I add, that he was greater than Giulio, considering that the latter did not ennoble his own style so much by the contemplation of the works of Raffaello, as Taddeo did his by studying those of Giotto. No artist-no one conversant with the fine arts - who visits the Campo Santo of Pisa can see, among the various fragments of heads and figures saved from the flames, a Virgin, with the Divine Son in her arms, without feeling astonishment at the grandeur of the design, and without inquiring who was its author; and the wonder will be increased by hearing that it was the work of a disciple of Giotto."\* Ghiberti, in his Commentary, says, that Taddeo "was a most skilful artist, and painted pictures exquisitely." He also painted in the four compartments of the ceiling of the Chapter House of the Dominican fathers in Santa Maria Novella, afterwards called the Chapel of the Spaniards, the glorious Resurrection of the Saviour, the Escape of St. Peter from Shipwreck, the Ascension, and the Descent of the Holy Ghost, which last was pronounced by Lanzi to be one of the finest works of the fourteenth century. In the Resurrection of Christ, Taddeo conceived that idea which was afterwards carried to perfection by Correggio in his celebrated "Notte,"—that is, to cause the light to proceed from the glorified body of the Saviour. And if he did not succeed in developing his ideas in the figures and other parts, on account of the difficulties he met with, we can understand perfectly that the requisite mechanical skill was wanting to express the conceptions of genius, which in Gaddi exceeded his skill in the art.

The works in this chapel alone were considered by Rosini the

<sup>\*</sup> See a sketch of this picture, Plate VII.

most important efforts of Italian painting after the time of Giotto, and sufficient to establish the fame of the artists, Taddeo Gaddi and Simone Memmi, who painted it; and he concludes his account of these two great men by saying that they surpassed every other painter of the time in which they lived, and that, next to Giotto (judging from their works which are still preserved), they were worthy of being proclaimed and acknowledged the great propagators of painting in Italy.

Many works of Taddeo's have been preserved besides those we have named. Among them are the picture of the Virgin in the Baroncelli Chapel, and those in the Sacristy of Santa Croce.

"Whoever considers with attention the pictures begun and finished at this period by the two contemporary schools of Tuscany, cannot but be astonished at their importance and extent, not less than at the extraordinary facility of their execution. I think I am speaking the truth when I say, that the artists of this period did as much in months as is now done in years.\*

"To this merit they added such an exquisite sense of the beautiful, and of propriety in the representations of objects and persons, that we often find these masters of the art unable to express their conceptions perfectly; but they never deviate from the right path, or fall into exaggeration, nor are they betrayed into what was afterwards called mannerism.

"They represent joy as it should be, lively and animated; their expression of grief is subdued and natural; gravity is represented as dignified, without appearing pompous; and the grace which accompanies the gentler emotions never degenerates into affectation."

The great Canova, when he inspected the frescoes of Florence, frequently bestowed these praises on the principal artists of the

<sup>\*</sup> A principal cause of the great number of works executed by these and succeeding painters in Italy, and, we may also add, in the great Flemish schools, is the number of pupils employed by them, and who continued to paint with them many years, as we are informed by Cennino, Vasari, and other writers. The masters made the designs, the pupils advanced the works as far as they were able, and the finishing touches were afterwards added by the master.—Translator.

ancient school, not without adding (amid the admiration they excited in him), that the art should again return to the observance of their principles. See Rosini, vol. ii.—Translator.

(2)—This address will scarcely be thought extraordinary, when it is recollected that painting owed much of the progress it had made in advance of the other arts to the religious feelings of the people (Vasari, vol. iii. p. 9), and to the reverence paid by the devotees of the Roman Catholic Church to the Virgin, and to saints and martyrs. Many of the painters were monks and priests, who were principally employed in decorating their churches and convents with scriptural subjects. By this means, principally, the people became acquainted with the great events recorded in Scripture. "The best painters of these days were solely employed," says Buffalmaco, "in painting male and female saints on walls and pictures; and, in spite of all the demons, making men better and more devout." Boccaccio, Decamerone.—Translator.

# Снар. 4.—Р. 4.

- (1)—Triare, macinare: see book ii.
- (2)—Incollare: see book v.
- (3)—Impannare: see chap. 114.
- (4)—Ingessare: see chap. 115.
- (5)—Radere i gessi: see chap. 120, 121.
- (6)-Rilevare di gesso: see chap. 124-130.
- (7)—Mettere d' oro: see chap. 134-140.
- (8)—Temperare.
- (9)—Campeggiare.
- (10)—Spolverare: see chap. 141.
- (11)—Grattare: see chap. 142.
- (12)—Granare, carucciare: chap. 142.
- (13)—Ancona or cona is the same as tavola. Lanzi thinks this word is derived from the Greek icon, that is, picture; a very natural supposition, because those modern Greeks who painted pictures of saints in Italy would have called them, in their language, icone, whence cone and ancone.—Tambroni.

Снар. 5.—Р. 4.

- (1)—Sommesso.
- (2)—Polpastrello.

### Снар. 6.--Р. 5.

(1)—Rosini, alluding to this method of drawing, says: "In these ancient times these tablets were used to draw, on a small scale, those subjects which were intended afterwards to be executed on a large scale." He adds, that the Baron Camuccini possesses several of them, which were undoubtedly used by Giotto; and he gives an outline of two which he considered the most beautiful. From these the representation of the Virgin and Child (Plate VIII.) has been selected as one of the illustrations of this work.—Translator.

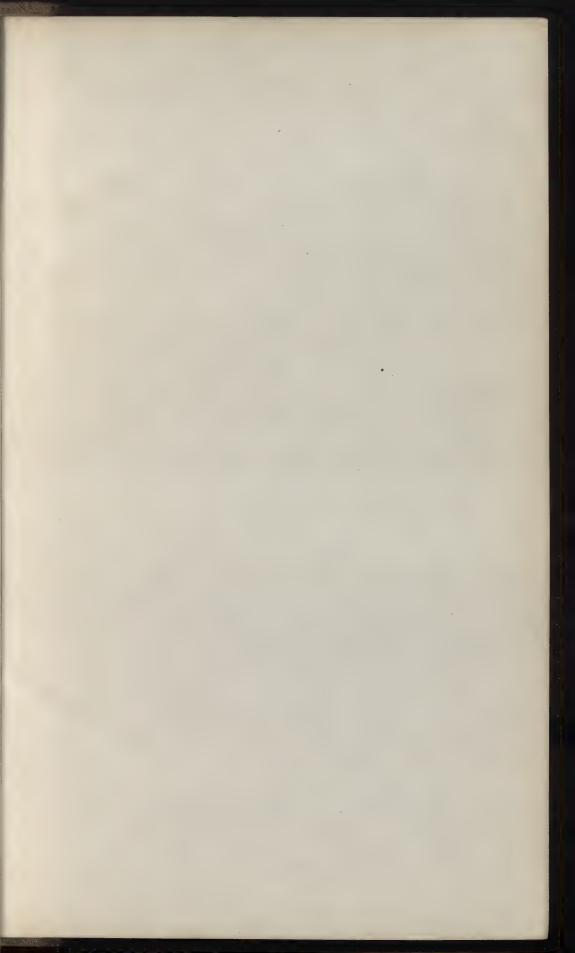
(2)—These tablets are still made in France and other places.— *Tambroni*. This shews the antiquity of grounds made with white lead and oil.—*Translator*.

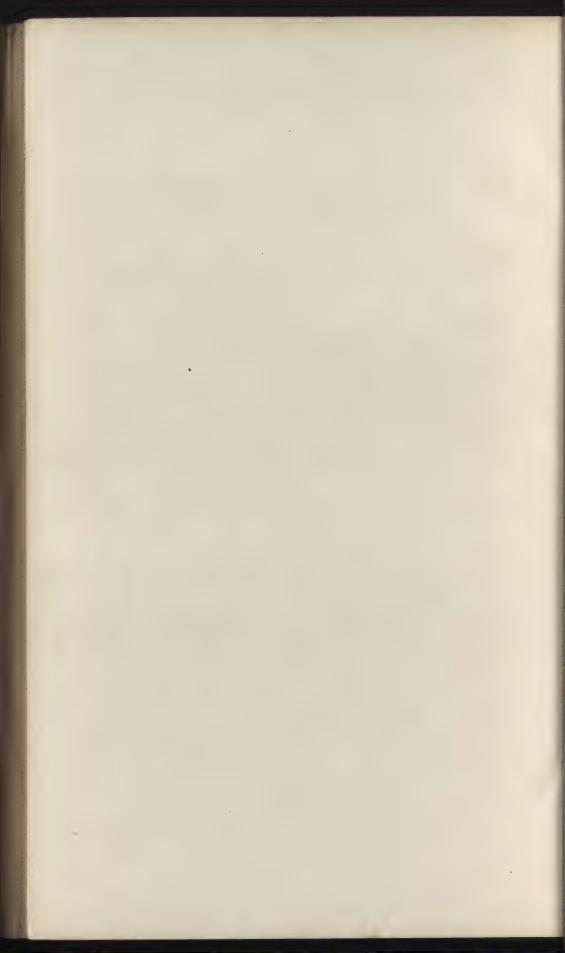
# Снар. 7.—Р. 5.

(1)—This rather singular allusion to the manners of the times shews that the practice of picking bones, and throwing them under the table, was universal.—Translator.

# Снар. 10.—Р. 7.

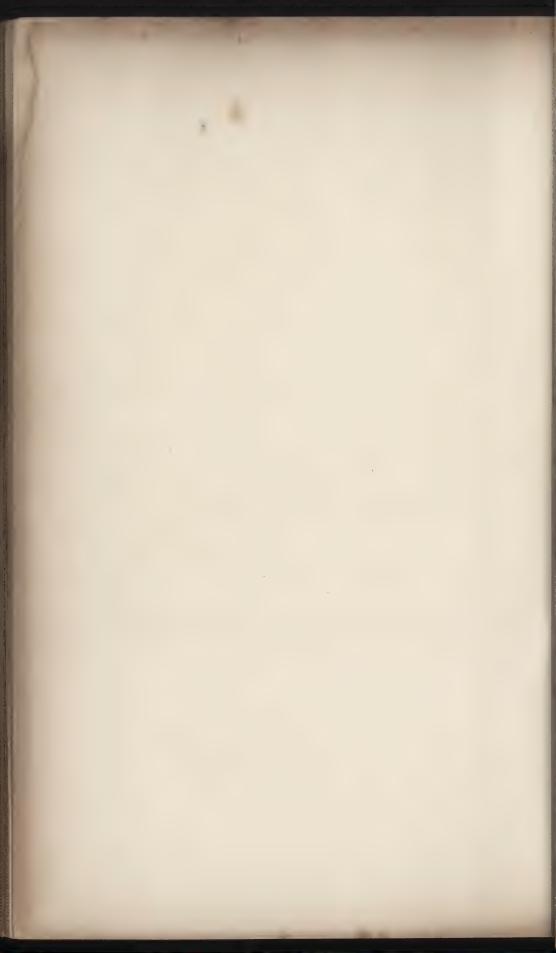
- (1)—Carta bambagina: see Preface, by Tambroni.
- (2)—Stile. This instrument is described in chap. 142, and is precisely like those used by the ancients, as represented in Potter's Antiquities of Greece.—Translator.
  - (3)—Vernice da scrivere: see Preface, by Tambroni.
  - (4)—Ink: see note 2 to chap. 37.
- (5)—Pezzuole, a red colour brought from the Levant, now called pezzette di Levante, used by the Italian ladies for rouge. Pliny mentions a pigment called *purpurissum*, which he says was made from *creta argentaria*, a fine chalk or clay (for the ancients seem to have been ignorant of the difference between calcareous and







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aluminous earths), steeped in a purple dye. In colour it ranged between minium and blue, and included every degree in the scale of purple shades. He adds, that the best sort came from Pozzuoli, and that it could not be used on a wet surface. It seems probable that this was the colour mentioned by Cennino.—Translator.

# Снар. 13.-Р. 8.

(1)—The shades in these drawings with the stile and pen appear to have been hatched, that is, shaded with lines, as in drawings.—Translator.

(1)—Cennino mentions no slit for the pen.—Translator.

(1)—Terre verte: see chap. 51.

# Снар. 17.—Р. 10.

(1)—It should be *sit nihilominus*. Every time that the author has made use of Latin phrases he has done so in the vulgar manner, that is, incorrectly.—*Tambroni*.

### Снар. 18.—Р. 11.

- (1)—No number appears to be mentioned.—Translator.
- (2)—Lapis amatisto: see chap. 42 and notes.—Translator.

#### Снар. 19.-Р. 11.

(1)—In other places this is called baccadeo, which reading seems more correct, either because indigo was prepared from those beads (bacche), or rods of blue glass, which were made formerly and are still made at Venice, or because indigo, extracted from woad, issues from the plant like a berry (bacca) or froth. Perhaps maccabeo and baccadeo were terms used by the Venetian merchants, who brought the indigo from the Levant.—Tambroni. It seems more probable that the term baccadeo was derived from Bacam, a city of India in the

Delta of the Ganges, from whence it was probably brought, and that the meaning was *indigo* of Bacam. The editor also applies the term *indaco* to the blue tints extracted from woad, and to other blues besides those which were brought from India, thus using it in a general rather than a specific sense.—Translator.

# Снар. 22.—Р. 12.

(1)—As the author has always spoken of the proportion of ounces, it is probable the negligence of the amanuensis has omitted the word "ounce."—Tambroni.

### Снар. 27.—Р. 14.

(1)—This chapter throws great light on the state of these ancient schools, in which the disciples always imitated their masters. If we always imitate the manner of one master, we shall infallibly acquire it, and make it our own. Leonardo da Vinci, in his Treatise on Painting, chap. 24, condemns this practice. He says that a painter who adopts this plan will be the nephew rather than the child of nature.—Tambroni.

# Снар. 29.—Р. 15.

(1)—Leonardo da Vinci, in his *Treatise on Painting*, recommends solitude to painters.—*Tambroni*.

# Снар. 30.—Р. 16.

(1)—This appears to be an error, since Cennino (chap. 70) divides the face into three parts, namely, the head (or forehead), the nose, and the chin.—Translator.

# Снар. 31.—Р. 16.

(1)—Pennello mozzetto. This term occurs frequently: it is used where flat tints or broad shadows are to be laid. It seems that the hairs in such pencils were all of one length, not terminating in a point. (See chap. 65.) This chapter shews that the shades were

laid on flat, and softened off, and not hatched, as in pen-and-ink drawings.—Translator.

(2)—Cennino does not give directions for dissolving gum arabic; but it is well known to be soluble in *cold* water.—*Translator*.

# Снар. 34.—Р. 19.

(1)—Good black chalk for drawing is found near Bantry Bay in Ireland, and also in Wales; but the Italian has the best reputation. Field's *Chromatography*, p. 318.—*Translator*.

# Снар. 36.—Р. 20.

- (1)—It would seem that Cennino did not intend to speak of the stone we now call serpentine, because that is a hard stone, and is now used by painters. The same name must have been given in his days to a softer kind of stone. Pliny says (lib. 36, cap. 7) there were two sorts of this stone (serpentine), one white and soft, the other black and hard.—Tambroni. The serpentine, called soapstone, near the Lizard in Cornwall, is soft.—Translator.
- (2)—The braccio of Florence contains about twenty-three inches. It is used to measure woollen and silk goods. The stone used by Cennino must have been about a foot square; consequently he could have ground but little colour at a time.—Translator.
- (3)—Such a stone is called a muller; glass is often substituted for this.—Translator.
- (4)—A spatula or palette-knife of wood. It will be observed, in the course of the work, that the old painters were very careful not to let iron touch their colours. See chap. 113-136.—Translator.
- (5)—It is worthy of consideration, whether this mode of preserving the colours by keeping them under water, and consequently excluding the air, is not to be preferred to the modern practice of keeping them dry in bottles.—Translator.

# Снар. 37.—Р. 21.

(1)—Field, in his *Chromatography* (p. 315), says, that all carbonaceous blacks have, when duly mixed with white, a preserving

influence upon colours, which they owe chemically to the bleaching power of carbon, and chromatically to the neutralising and contrasting power of black with white.—Translator.

(2)—Lamp black. The ancients, according to Dioscorides (lib. 5, cap. 139, e. 140), made use of this condensed smoke for their writing-ink. To three ounces of the lamp black they added one pound of gum. But the lamp black for painting is now collected from the smoke of the glass furnaces.—Tambroni. This is the ink of which Cennino speaks in the early chapters of the book. It is also mentioned by Leonardo da Vinci, who employed it as a pigment in shading.—Translator.

### Снар. 38.—Р. 22.

(1)-This colour, as well as cinabrese, which is made from it, is no longer known by this name. Mattioli, in his Erbario, and in his discourse on the fifth book of Dioscorides, c. 71, p. 752, has this definition: "This red ochre of Sinopia is very fine; it is heavy, dense, and of the colour of liver, without any mixture of stone; it is coloured equally throughout, and, if put into water, diffuses itself copiously. It is dug in Cappadocia out of certain caves, and afterwards carried to the city of Sinopia, where it is purified and sold; and is thence called sinopia. It has the property of drying," &c. Dioscorides finishes here. His commentator says, that in his time there was none which could with truth be said to be the true sinopia; therefore it is likely that this was coarse Armenian bole. He cites Giorgio Agricola, from whom he collects that sinopia was found in his own mines, as well in gold mines as in those of copper, silver, and iron. Pliny speaks of sinopia (book 35, c. 7) as one of the four colours of which Apelles, Echiones, Melanzio, &c., made use. Lazzarini, in the fourth dissertation on painting (p. 120, Op. tom. i.), asserts that it is the same colour as our red earth; but perhaps it was a finer colour. It appears to have been a dark-red earth, or brown oxide of iron, the metal being oxidised in the third degree. -Tambroni.

(2)—With this colour are made most of the beautiful red grounds so much admired at Pompeii and elsewhere (Davy on the Colours used by the Ancients,—Phil. Trans., 1815). There were three sorts; the best came from Lemnos, and was stamped to shew that it was genuine; it was also brought from Egypt and Africa, from the Balearic islands, and from Cappadocia.—Translator.

### Снар. 39.-Р. 22.

(1)—This chapter is a proof that Vasari had never read this book, because, as I have mentioned in the Preface, he said, in the life of Agnolo Gaddi, that Cennino does not mention this colour.— *Tambroni* (Vas. ii. p. 223).

# Снар. 40.—Р. 23.

- (1)—The monks were the great preservers of learning in those days, and doubtless many important secrets in the arts are yet concealed in convents. Vasari likewise mentions the skill of an abbot in preparing ultramarine. See the Life of Pietro Perugino.—Translator.
- (2)—"E dove è in maggiore altezza il tiglio più disteso e delicato." I am in doubt as to the exact signification of this passage; but think the meaning may be collected from the subjoined description of artificial unground cinnabar, which was that described by Cennino.—
  Translator.
- "Vermilion, or cinnabar, is a compound of mercury and sulphur, in the proportion of 100 parts of the former to 16 parts of the latter, which occurs in nature as a common ore of quicksilver, and is prepared by the chemist as a pigment, under the name of vermilion. It is, properly speaking, a bisulphuret of mercury. This artificial compound being extensively employed, on account of the beauty of its colour, in painting, for making red sealing-wax, and other purposes, is the object of an important manufacture. When vermilion is prepared by means of sublimation, it concretes in masses of considerable thickness, concave on one side, convex on the other, of a needle

form, colour brownish-red in the lump, but, when reduced to powder, of a lively red colour. On exposure to a moderate heat it evaporates, without leaving a residuum, if it be not contaminated with red lead; and at a higher heat it takes fire and burns entirely away with a blue flame." Ure's Dictionary of Art. Merimee says, that the Ethiop's mineral (sulphur and mercury) when sublimed yields a crystallised mass, composed of bright filaments of a violet tint, which by trituration become of a scarlet colour.—Translator.

(3)—In the Report of the Commissioners of the Fine Arts, it is stated, that a method has been discovered by which vermilion is rendered durable in fresco painting.

"When pure and alone, light does not affect its colour; but white lead, or any oxide or preparation of that metal, mixed with it, soon deprives it of colour, and acids have the same effect; impure air will blacken or metallise it. When used alone, or under favourable circumstances, it will stand a long time; hence it has a varying character for durability. It can only be used safely with earths, ochres, and blacks." Field, p. 175; and see the note to chap. 41.—
Translator.

#### Снар. 41.—Р. 24.

(1)—Minium was called *cerusta usta* by the ancients. It is durable when used alone, but loses its colour when mixed with white lead, or any other preparation of lead, or with acids. It may, however, be mixed with ochres, earths, or black (Field); and Cennino and other old masters used it with vermilion.—*Translator*.

#### Снар. 42.—Р. 24.

(1)—Baldinucci, in the life of Cennino, observes, that this word amatisto, or amatito, is a better word than that which we (the Italians) now use,—namely, matita; since hæmatios, from whence it is derived, signifies sanguine. The Latins say, hæmatites, or amethystine. Ant. Tilesias, in his book De Colorib. p. 432, speaking of this colour, says: "Amethystinus præterea, ex quo tyriamethystus

in usu fuit olim." (And the amethyst, an extract from which, the tyriamethyst, was formerly in use.)

The cardinals had the red hat by a decree of the Council of Lyons, held in 1245 by Innocent IV., who gave it to them at Clugny in 1247. They did not adopt the red dress until 1464,—that is, under the pontificate of Paul II.; therefore, at the period when Cennino was living, they still wore the purple colour.—Tambroni.

It appears to me that there are two minerals known by names somewhat similar, and that the distinction between them is not sufficiently attended to. The amatito of Cennino is probably native cinnabar, which "occurs crystallised in rhomboids, has a flat conchoidal fracture, is fine-grained, opaque, has an adamantine lustre. and is of a colour varying from cochineal to ruby red. It is met with, in larger or smaller lumps, in veins, which are surrounded by a black clay, and is associated with native quicksilver amalgam, with iron ore, lead glance, blende, copper ore, gold," &c. The above description tallies well with that given by our author, and by Baldinucci, in the Vocabolario del Disegno. It is produced in many countries, and is said by Dr. Ure to be the most prolific ore of sulphur. As a permanent red inclining to crimson would be a most desirable addition to our colours for painting in fresco, a pursuit now so much encouraged by government, artists should make experiments with native cinnabar, which would require no further preparation than that of grinding. The other mineral, amatita, or matita (terminating in a), which is certainly the hæmatite, the woodiron of Cornwall, is comparatively a soft stone, and is used for drawing; it is either red or black. See Il Reposo di Raffaello Borghini. This is an ore of iron, and is found, says Vasari (Introduction to the Three Arts, chap. xxxii.) in iron mines. A stone so soft as to be used for drawing could not have been used for burnishing gold, which it would undoubtedly have tinged with its colour. The colour of this stone also is red, or a reddish brown, while that of the first inclines to purple. The French painters used

a natural red earth, which was brought from England (the terra rossa d'Inghilterra of Pozzo), instead of lake, which could not be used in fresco; and we are told, that the damper the wall was on which it was applied, the finer did the colours become. "The ancients," adds De Piles (Elémens de Peinture, part i. chap. viii.), "had a colour nearly resembling lake, with which they painted in fresco; but its composition is unknown to us." It is probable that he alluded here to the amatito of Cennino. Pozzo used calcined Roman vitriol (vitriolo abbrucciato, oxidum ferri rubrum, red oxide of iron), mixed with vermilion, for painting draperies in fresco: he informs us that from this mixture resulted a purple colour as brilliant as that of the finest lake. See Pozzo's instructions for painting in fresco at the end of his well-known work, the Jesuit's Perspective, and note (1) to chap. 72.—Translator.

### Снар. 43.--Р. 24.

(1)—This pigment is a resin of a red colour, which, during the dog-days, exudes from the tree called *pterocarpus draco* by Linnæus. Vide Marcucci, Sag. Analit. p. 138. The Caval. Rosa (Trat. delle Porpor. p. 196), among many others, thinks that this may be the lapathum mentioned by the anonymous Greek author to whose work we have referred, and which has been translated into Latin by Bulengero.—Tambroni.

It is thought that this is the colour called cinnabar by the Indians, said to be produced by the mixed blood of elephants and dragons in their deadly fights. Of all colours, it most aptly represents blood. Modern research has confirmed the opinion of Cennino as to its value as a pigment. White lead soon destroys it.—

Translator.

# Снар. 44.—Р. 24.

(1)—This is gum-lac. It is not at present in use by painters, but it was used by the masters of the old school, and principally by the Venetians; perhaps because Venice was the great mart for

colours, and there they were most perfect. This lake, which was then a common colour, was very excellent at that time. The word lacca, lake, is said to be from the Arabic, lach: it was called by the Greeks also lacca. Rosa, in his treatise Delle Porpor. p. 192, e seg., cites two passages preserved and translated by Bulengero, the one from Democritus of Abdera, and the other from an anonymous author, which specify among the ingredients used in counterfeiting purple, the lacca acaica, or flower of the acaja; but Rosa confesses his ignorance in this particular, nor does he know whether the lacca tinctorum of Mirpesio is the resin, or gum-lac, or the flower of the acaja.—Tambroni.

The lakes found in old pictures were prepared either from the lac or kermes. The lac-lake is less brilliant and more durable than those of cochineal and kermes, but inferior, in both respects, to the colours of madder.—Field, 184, 185. It is imported from India in cakes, stamped with peculiar marks to designate the different manufactures. The solvent used for them is either sulphuric or muriatic acid. Dr. John found the lac-dye to consist of colouring-matter, 50; resin, 25; and solid matter, composed of alumina, plaster, chalk, and sand, 22.—Translator.

#### Снар. 45.—Р. 25.

(1)—Ochre, yellow and brown, is a native earthy mixture of silica and alumina, coloured by oxide of iron, with occasionally a little calcareous matter and magnesia. Ochre occurs in beds some feet thick, which lie generally above the oolite,—are covered by sandstone and quartzose sands, more or less ferruginous, and are accompanied by grey plastic clays of a yellowish or reddish colour, all of them substances which contribute more or less to its formation. The ochry earths are prepared for use by grinding under edge millstones and elutriation. The yellow ochres may be easily rendered red or reddish brown by calcination in a reverberatory oven, which oxidises their iron to a higher degree.

Native red ochre is called red chalk and ruddle in England.

It is an intimate mixture of clay and red iron ochre, is massive, of an earthy fracture, is brownish-red or blood-red, and it stains and writes red. The oxide of iron is sometimes so considerable that the ochre may be reckoned an ore of that metal.—Ure's *Dictionary of the Arts*. The ochres are valuable pigments; they are not affected by light, impure air, or the action of lime; but in time they become somewhat darkened.—Field.

# Снар. 46.—Р. 26.

(1)—This doubtful declaration of the author respecting the nature of giallorino, shews that he did not know the preparation of all the colours, nor whence they were brought.—Tambroni.

Giallorino is a compound of the oxides of lead and antimony. It was anciently prepared at Naples, and is still prepared in Italy by a secret process; for few of the receipts which have been published produce a good colour. It is apt to be very unequal in different samples. It is supposed to have been a native production of Vesuvius and other volcanoes, and is a pigment of deservedly considerable reputation. Iron is destructive of its colour. For this reason it should not be mixed with Prussian blue, or others, and other pigments of which iron is an ingredient. It may be used pure, or with white lead. It dries well in oil. See Field, Ure.—Translator.

# Снар. 47.—Р. 27.

(1)—Artificial orpiment, of which Cennino speaks, is manufactured chiefly in Saxony, by subliming, in cast-iron cucurbits, surmounted by conical cast-iron capitals, a mixture in due proportion of sulphur and arsenious acid (white arsenic). As thus obtained, it is in yellow, compact, opaque masses, of a glassy aspect, affording a powder of a pale yellow colour. Genuine orpiment is often adulterated with an ill-made compound, which is sold in this country by the preposterous name of king's yellow. This fictitious substance is frequently nothing else than white arsenic combined with a little sulphur, and is quite soluble in water. Ure's *Dict*. The ancients

possessed this pigment, which they called auri pigmentum. It could not be used on wet surfaces.

It is also found in a natural state in volcanic districts, and the best specimens are brought from Persia. It has been observed that orpiment and other poisonous pigments are less poisonous in the natural than in the artificial state.—*Translator*.

(2)—We may here remark that the school of Giotto did not approve of the use of orpiment; and Cennino, indeed, seems to have had almost an antipathy to it: see chaps. 47, 48, and 72. Much has been written lately on mixing powdered glass, or pure silica, with colours, in order to give them the rich varnishy look observable in old pictures. Powdered glass is opaque; and we do not observe that those colours with which it is mixed are remarkable for any varnishy appearance. I allude particularly to orpiment, and also to smalt, "with which (says Dr. Ure) powdered glass is mixed, to render the tint lighter;" which it could not do, were it not opaque.

I think the passage in the text of Cennino conclusive as to its use, and that the old masters did not use levigated glass with their pigments as a dryer, as supposed by Mr. Field in his Chromatography, p. 151, but merely to assist in pulverising and dividing the pigment more perfectly. Mr. Field surmises, also, that orpiment may have been used with simple varnish. Now we do not know what the old masters meant precisely by the term "varnish," but Cennino says expressly of this colour, that it would bear no tempera but size. The old masters were accustomed to mix it with indigo as well as with ultramarine.—Translator.

# Спар. 48.—Р. 27.

(1)—The vocabulary has risigallo and risagallo. But this word, deriving its origin from the Arabic risalgallo, seems preferable, because the article al should be preserved. The chemists now call it realgar. See Marcucci, Sag. Analit., p. 87. The learned professor Lanzi gave me the following note, which explains the nature of its composition: Alegejar. psilotricum ex calce viva et arsenico.—Tambroni.

Red orpiment is a native ore, which occurs in primitive mountains, associated sometimes with native arsenic, under the form of veins or efflorescences, very rarely crystalline; as also in volcanic districts,—for example, at Solfaterra, near Naples; or sublimed in the shape of stalactites in the fissures and craters of Etna, Vesuvius, and other volcanos. It has a fine scarlet colour in mass, but orange in powder, whereby it is distinguishable from cinnabar. It is soft, sextile, readily scratched by the nail; its fracture vitreous and conchoidal. It volatilises easily before the blow-pipe, emitting the garlic smell of arsenic along with that of burning sulphur. It consists of arsenic 70, sulphur 30, in 100 parts. Factitious orpiment has not the rich colour of the native pigment, and is more poisonous. The orange hue is produced by heat. See Ure's Dict.—Translator.

### Снар. 50.—Р. 28.

(1)—This word is no longer applicable to any colour. Perhaps arzica may be what we now call *gamboge*,—the *cambodia gutta* of Linnæus.—*Tambroni*.

This is scarcely probable, since gamboge is a natural pigment, being a gum issuing from the above-mentioned tree, and Cennino informs us that arzica was a chemical production.—*Translator*.

(2)—Della Magna, Allemagne, Germany. See ch. 61.—Translator.

#### Снар. 51.—Р. 28.

(1)—Cennino appears to have had a great partiality for this colour; and it seems to have deserved its reputation, since it is unaffected by strong light or impure air, and combines with other colours without injury. It has not much body, is semitransparent, and dries well in oil. The best is procured from Monte Baldo, near Verona. It was much used by all the old masters, particularly in representing dead persons.—Translator.

(2)—Cennino gives directions for gilding on verde terra in chap. 133.—Translator.

#### Снар. 52.—Р. 29.

(1)—This is an ore of cobalt, and owes its green colour to the copper, iron, or zinc with which it is combined. It is a very durable pigment.—Translator.

# Снар. 55.—Р. 30.

(1)—The reason of this appears to be, that the green will be lighter if the yellow be put first, and the blue added afterwards; for if the blue be put first, the green may become so dark, that it will be necessary to make a great quantity in order to produce a light tint of green, and thus create a waste of colour.—Translator.

# Снар. 56.—Р. 30.

(1)—The painters who lived when the arts were restored in Italy used this colour; and Leonardo da Vinci, in his treatise on Painting, cap. xcix., advises the application of varnish to the surface of the colour as soon as it is dry, because, being a soluble salt, it would be carried off whenever the picture was washed. This colour when ground in oil-varnish is not soluble in water, but its only use is in glazing (see Cennino, chap. 142, 143), and as a dryer in mordants (see chap. 152). The bright greens seen in some old pictures are made by glazings of verdigris. De Piles calls this pigment the ruin of all colours, and says, that if the smallest particle enter into the ground, it is sufficient to spoil the whole picture. It should be used always alone, for it destroys other pigments when it is mixed with them. Pencils and brushes that have been used for verdigris must never be used with other colours. De Piles, Elémens de Peinture, part i. chap. 4.—Translator.

# Снар. 58.—Р. 31.

(1)—Bianco sangiovanni prepared in the manner described by Cennino is not, that I am aware of, any longer in use in painting in fresco. We can readily believe that on this depends in a great measure the success of this mode of painting. It might, then, be

128 Notes.

useful to return to this practice. Armenini, in cap. 7. of book ii., taught various modes of purifying this kind of white; but none of them are at all like this.—*Tambroni*.

Modern fresco painters prepare their white exactly in the manner described by Cennino. See the Report of the Commissioners on the Fine Arts.—*Translator*.

#### Снар. 59.—Р. 32.

(1)—It is customary on the continent to mould the white lead into conical loaves before sending them into the market. This is done by stuffing well-drained white lead into unglazed earthen pots of the requisite size and shape, and drying it to a solid mass, by exposing these pots in stove-rooms. The moulds being now inverted on tables, discharge their contents, which then receive a final desiccation, and are afterwards put up in pale blue paper, to set off the white colour by contrast. Nothing in all the white-lead process is so injurious as this pot operation—a useless step, fortunately unknown in Great Britain. Neither greasing the skin nor wearing thick gloves can protect the operators from the diseases induced by the poisonous action of the white lead; and hence they must be soon sent off to some other department of the work. Ure's Dict.

(2)—When white lead has lost its colour, it may be restored by the application of oxygenated water.—Translator.

#### Снар. 60.—Р. 32.

(1)—Of this blue the best sort comes from Saxony, and is a vitreous oxide of cobalt, combined with potash and white silicious sand, and with oxide of arsenic; and was much used in the time of the author. The blues of Berlin, of Paris, and of cobalt, are of recent invention.—Tambroni. When the cobalt has been deprived of the arsenic by roasting, and has been mixed with two or three parts of very pure silicious sand, it is called zaffre. Another pigment, called azure or smalt, is prepared from zaffre. The more free the cobalt is from foreign metals, the finer is the colour, and the deeper is the

shade; paler tints are easily obtained by the addition of more glass. The presence of nickel gives a violet tone (Ure's *Dict. of Arts*, p. 303). This purple tint may be frequently observed in old pictures, and appears to be very durable.—*Translator*.

# Снар. 61.—Р. 32.

(1)—Indigo appears to have been known to the ancients under the name of purpurissum indicum. It was one of the colours which Pliny says could not be used on wet walls, consequently not on fresco. At a later period it was, however, used in fresco during the summer, at which time it dried well, but never during the winter, when it would not dry. See L' Abecedario Pittorico, and the note to chap. 144. It was much used in painting about the time of the monk Theophilus, who mentions it in his work De Arte Pingendi, lib. i. cap. 14.

## Снар. 62.—Р. 33.

- (1)—The present mode of preparing this colour (Marcucci, Sag. Analit., p. 50, 54) is very different from that described by Cennino in this chapter. Painters should give it a trial. The method of the author has the experience of centuries in its favour, and the beauty of the blue draperies which we see in old pictures and on walls is perfectly astonishing. It is to be observed, that the action of fire, to which the stone is now subjected, is likely to produce some alteration in the colour.—Tambroni.
- (2)—Cennino seems to have been somewhat of the same opinion in this respect as Pope Sextus IV., of whom the following anecdote is related by Vasari in his life of Cosmo Roselli, who died in 1484. "It is said that the pope had promised to give a prize to the painter whose picture he should consider the best executed. The pictures being finished, and every artist having used his best endeavours to deserve the prize and honour, his holiness went to see them. Cosmo Roselli, being aware that he was deficient in invention and design, sought to conceal these defects by covering the work with the finest

ultramarine and other brilliant colours, and illuminating it with a great quantity of gold, so that there was neither tree, nor grass, nor drapery, nor cloud, that was not illuminated; for he thought that the pope, who understood but little of the art, would on this account award him the prize. The day being arrived when the pictures of all the artists were to be exhibited, that of Cosmo was the laughingstock of all the other painters, and they bantered instead of compassionating him. But the laugh was soon turned against them; for the colours, as Cosmo had expected, so dazzled the eyes of the pope, who did not understand painting, although he took much delight in pictures, that he adjudged the work of Cosmo to be better than all the rest. And so he ordered the prize to be given to him, and commanded that the other artists should cover their pictures with the best azure that could be procured, and illuminate them with gold, until they were as richly coloured as that of Cosmo. The poor unfortunate painters, in despair that they were obliged to yield to the ignorance of the holy father, now took the same pains to spoil their works as they had formerly done to make them perfect; and Cosmo in his turn laughed at those who a short time before had laughed at him."

I subjoin the modern mode of preparation, and also some methods of preparing factitious ultramarine, for the purpose of shewing that the fine colour of the old ultramarine was probably owing to the lye with which it was prepared. It would be worth while to ascertain whether the lye, after being removed from the ultramarine on which it has stood for some time, have parted with any of its alkali, or whether it be as strong as when first used. The use of lye with colours was by no means uncommon with the old masters, as I shall hereafter mention.

"Till a few years ago every attempt failed to make ultramarine artificially. At length, in 1828, M. Guimet resolved the problem, guided by the analysis of MM. Clement and Desormes, and by an observation of M. Tassaert, that a blue substance like ultramarine was occasionally produced on the sandstone hearths of his reverbera-

tory soda furnaces. Of M. Guimet's finest pigment I received a bottle, several years ago, from my friend M. Merimée, secretary of the Ecole des Beaux Arts, which has been found by artists little if any inferior to the lazzulite ultramarine. M. Guimet sells it at sixty francs per pound French, which is little more than two guineas the English pound. He has kept his process secret. But M. Gmelin, of Tubingen, has published a prescription for making it, which consists in enclosing carefully in a Hessian crucible a mixture of 2 parts of sulphur and 1 of dry carbonate of soda, heating them gradually to redness till the mass fuses, and then sprinkling into it by degrees another mixture of silicate of soda and aluminate of soda; the first containing 72 parts of silica, and the second 70 parts of alumina. The crucible must be exposed after this for an hour to the fire. ultramarine will be formed by this time, only it contains a little sulphur, which can be separated by means of water. M. Persoz, professor of chemistry at Strasbourg, has likewise succeeded in making an ultramarine, of perhaps still better quality than that of M. Guimet. Lastly, M. Robiquet has announced, that it is easy to form ultramarine by heating to redness a proper mixture of kaolin (China clay). sulphur, and carbonate of soda. It would therefore appear, from the preceding details, that ultramarine may be regarded as a compound of silicate of alumina, silicate of soda, with sulphuret of sodium; and that to the reaction of the last constituent upon the former two it owes its colour."—Ure.

In preparing ultramarine for painting, it is now the practice to calcine the lapis lazzuli at a red heat, then quench in water, and grind to an impalpable powder. It is then worked into a paste composed of 100 parts lapis lazzuli, 40 resin, 20 white wax, 25 linseed oil, and 15 Burgundy pitch. After standing fifteen days, and kneading it, the ultramarine is separated by washing it with clean water heated to 150 degrees; the residue only, which yields the ultramarine ashes, is treated with a solution of soda. Ultramarine is found to consist of silica, alumina, sulphur, and soda or potash. De Piles observes, that ultramarine when calcined became more brilliant,

but that the quantity was diminished, and that by refining it in this manner it became coarser in texture, and difficult to use in miniature painting,—a charge equally applicable to the modern pigment.—

Translator.

- (3)—The word lazzari, instead of lazzuli, which is used by good writers, and is to be found in the vocabularies, at first appears a vulgarism. But if we pay attention to the following note, for which I am indebted to the Abate Lanzi, professor of Oriental languages, we cannot but acknowledge that the word lazzari more nearly resembles the root from which it is derived than the word lazzuli. We could not then consider it a provincialism, but merely a word no longer in use. "Lazoard, coll' articolo al-Lazoard, vocabolo persiano, usato dagli Arabi e vale cilestro; da cui ne viene l' azzurro."—Tambroni.
- (4)—Though the blue colour be extracted, a fine cool grey remains, which is now used under the name of ultramarine ashes.—

  Translator.
- (5)—Kermes grains are the dried bodies of the female insect of the Coccus ilicis, which lives upon the leaves of the prickly oak. It has been known in the East from the time of Moses, and has been employed from time immemorial in India to dye silk. It was also used by the Greek and Roman dyers. Pliny calls it coccigranum; and says that there grew upon the oaks of Africa, Sicily, &c., a small excrescence like a bud, called cusculium. The Spaniards paid half their tribute in these grains. There are many varieties. In Germany it is called Johannis blut (St. John's blood). Good kermes is plump, of a deep red colour, an agreeable smell, and a rough and pungent taste. Its colouring matter is soluble in water and alcohol. It becomes yellowish or brownish with acids, and violet or crimson with alkalis; with alum it forms a blood red. It is more permanent than the colour produced by cochineal, as is proved by the brilliancy of the old Brussels tapestry. Ure.—Translator.
- (6)—Verzino. This word is usually translated Brazil wood; but it is evident, as Brazil wood was not known until some years after

the discovery of America in 1492, that Cennino could not have been acquainted with it. It is highly probable that by verzino Cennino meant the litmus or archil, the use of which was revived by Federigo of Florence in the beginning of the fourteenth century (the dates therefore agree); and he made such an immense fortune by its preparation, that his family became one of the grandees of that city, under the name of Orcellarii, or Rucellarii. For more than a century Italy possessed the exclusive art of making archil, obtaining the lichens from the islands of the Mediterranean. It is now prepared in Holland from a species of lichen called Lecanora tartarea, Rocella tartarea, brought from the Canary islands, Sweden, &c., by a process which has been kept secret. The litmus is formed into small cubical pieces, which are dried in the shade. It has a violet colour, is easy to pulverise (another point of agreement with the verzino of Cennino), and is partially soluble in water and alcohol. The colour is not altered by alkalis, but acids turn it red; it is used in chemistry as a delicate test of acidity. Its colour is not durable.—Translator.

# Снар. 64.—Р. 36.

- (1)—This should be made the subject of an experiment, as, at the present time, the hairs are no longer baked.—Tambroni.
- (2)—This shews that the old masters did not use brushes with long handles.—Translator.
- (3)—Hair-pencils are now made from the hair of other animals besides those of the minever, by a process somewhat different from that described above, but which it is useless to describe, good brushes, especially those from Paris, being now so easily obtained; besides, their manufacture requires great skill and experience, there being, it is said, but four first-rate hands among all the dexterous pencil-makers of Paris, and these are principally women. The usual criterion of a good pencil is to form a fine point, so that all the hairs, without exception, may be united when they are moistened by laying them on the tongue or drawing them through the lips; but this, of

course, does not apply to those mentioned in the text requiring points of a different form.—Translator.

#### Спар. 65.—Р. 37.

(1)—The author adds, "con groppo over nodo di bomare over vesuo." The editor remarks, in a note to this passage, that it is impossible to find any traces of these words, and thinks it likely that the amanuensis may have made an error in copying. It is not, however, of great importance to ascertain with what kind of ligature the brushes were fastened to their handles.—Translator.

## Снар. 67.—Р. 39.

- (1)—Painting in fresco on walls is also called by Vasari (Introduction to the Three Arts, chap. xix.) more masterly, noble, manly, secure, resolute, and durable, than any other kind of painting. That this mode of painting was practised by the ancient Greeks and Romans, there appears to me no doubt, if we read Vitruvius, lib. vii. chap. iii., attentively. Some persons, nevertheless, have called it in question, and among them, Requenos (Sag. sul Ristabil. dell' Encausto, vol. i. p. 188, e seg.), who, by a forced interpretation, would explain the udo tectorio of Vitruvius in his own way, as referring to encaustic painting. But this opinion was victoriously combated by the author in his work Della Memoria per le Belle Arte, printed in the Efemeridi Romane of 1785, month of July.—Tambroni.
- (2)—Intonaco signifies the last coat of lime laid on walls previous to painting on them in fresco. See Vasari and Baldinucci, Voc. Dis. The term arricciato is applied to the second coat of plaster, which was made of river-sand and lime. See Baldinucci, Voc. Dis. Vasari.—Translator.
- (3)—This passage is extremely obscure; but the following extracts may assist in rendering it more intelligible:—

In the Life of Simon Memmi, Vasari, after mentioning many

paintings done by Memmi in the church of San Francesco in Ascesi, adds, that some "remained imperfect, and were drawn, as may still be seen, with a pencil dipped in rossaccio, on the arricciato; which was the method pursued by the old masters, for the sake of expedition, in making their designs when working in fresco; for having divided the whole arricciato into squares, they drew on it in pencil, copying from a small drawing what they intended to do, and enlarging it in the proportion required for their work." And, again, in the Introduction to the Three Arts, "the cartoons must be divided into squares, that the drawing may be correct and properly proportioned." I have seen small original drawings in pen and ink, by the Italian masters, which were divided into squares of little more than half an inch diameter, for the purpose of being enlarged for fresco and other paintings; and there is no doubt that Cennino intends to describe the process of doing this.—Translator.

- (4)—Parri Spinelli was the first who discontinued the use of this verdaccio. Vasari (vol. iii. p. 98) says, "he used solid colours in making his mixtures and tints, laying them judiciously in their proper places,—that is, the lights on the most elevated parts, then the middle tints for the general colours of the flesh, and the dark colours on the outlines. In this mode of painting he shewed great facility, and gave great durability to his fresco paintings, because he put the colours in their proper places, and then united them together with a large and soft brush; and so well did he execute his works, that one would never wish to see better, and his colouring is unequalled."—Translator.
- (5)—See the letter from Mr. Andrew Wilson to his son in the Report of the Commissioners, where he describes the method of painting pursued by Signor Pasciani at Genoa. See also Vasari's Life of Buonamico Buffalmacco, vol. ii. p. 144.—Translator.
- (6)—Vasari likewise gives this praise to Agnolo Gaddi, and says he was not great in design.—Tambroni. Rosini also (Storia della Pittura) confirms Vasari's opinion of the merit of this artist. The works of his maturer age did not fulfil the early promise he gave of

attaining excellence in his profession. His love of money surpassed his love of the art; he gave up painting for commerce, and left his sons heirs to great wealth, instead of great fame. His pictures, at least those to which his name is attached, are not numerous. Of the Virgin, painted by him in the Santo Spirito at Florence, Rosini says (vol. ii. p. 166) that it appears as fresh as if painted yesterday; and that if Agnolo has been celebrated for having painted this one picture only, it is highly probable that he would have been still more renowned for his more important pictures which have perished.—

Translator.

## Снар. 70.—Р. 45.

(1)—Cennino gives in this chapter a brief summary of the proportions of the human body. It was but little more than a century before the time of Cennino that painting freed itself from the trammels of ignorance which fettered it, for Cimabue died in 1300, Giotto in 1337, and the master of Cennino in 1387; and these great men had, without other assistance than what they derived from meditation and geometry, fixed the proportional standard of a man at eight faces and two parts. It cannot be said that they had followed Vitruvius in this; because in lib. iii. cap. 1, he divides the body into ten faces. We must then conclude that the measure here specified must be the result of the theory of Giotto. Leonardo followed the measurements of Vitruvius, and made his figures taller. Many who came after him, by dint of a refinement of reasoning, and abstract notions, and calculations, made this part of the science intricate and obscure. Whoever is inclined to know all the most celebrated writers on the symmetry of the human body, will find a learned catalogue in the work on the Last Supper of Leonardo da Vinci, p. 202, e seq., written by that illustrious and learned artist, Giuseppe Bossi, whose premature death was fatal to the cause of the fine arts in Italy, and mournful to his friends. This chapter also may assist in enabling us to judge of old paintings, and make us acquainted with the history of the arts previous to the age of Cennino. — Tambroni.

- (2)—There is evidently a mistake here. Leonardo da Vinci allows two faces for the length of the humerus, that is, from the shoulder to the elbow; while Cennino allows but one. Cennino also makes the length of the cubitus (i. e. from the elbow to the hand), which is naturally shorter than the humerus, one face and one part.—Translator.
- (3)—Modesty requires that these few words should be omitted. They do not in any manner relate to the arts.—Tambroni.
- (4)—This remark, and that which follows, shews the extremely low state of anatomical science in those days.—Translator.

## Снар. 71.—Р. 46.

(1)—Succeeding painters appear to have used a red tint (rossaccio) instead of the verdaccio. See Vasari, vol. ii. p. 177.—
Translator.

## Снар. 72.—Р. 47.

- (1)—According to Professor Hess this colour may be used in fresco. Pozzo, the author of the Jesuits' Perspective, has given a recipe by which vermilion may be rendered durable in fresco painting. It is given in the Report of the Commissioners of the Fine Arts, and is as follows: "Having put powdered vermilion into an earthen vessel, pour clear lime-water over it; pour this lime-water away, without disturbing the vermilion, and add fresh lime-water to it. After several such washings, the nature and properties of the vermilion will be changed, and it will incorporate more easily with the mortar."—Translator.
- (2)—Vasari (*Introduction to the Three Arts*, cap. xix.), speaking of painting in fresco, directs that baked bianco di travertino should be used instead of bianco sangiovanni.—*Tambroni*.
- (3)—Vasari, in the introduction and cap. xx., says, "On dry walls they give two or three coats of warm glue, and then finish the work with colours mixed with tempera." But Cennino teaches us an entirely different method; and we should rather follow his

instructions, because Vasari speaks of painting in distemper as a thing only practised by the old masters."—Tambroni.

(4)—Mr. Field (Chromatography, p. 348) mentions that Mr. Clover "has successfully employed the yolk of egg for sketching in body colours in the manner and with the entire effect of oil, which sketches, being varnished, have retained their original purity of hue, more especially in the whites, and flexibility of texture, without a crack, after many years in a London atmosphere." The translator concurs in this recommendation of the yolk of egg vehicle, having painted with it both on a white ground and on gold leaf. As a vehicle, it is extremely pleasant to work with, is entirely devoid of the unpleasant smell of oil-colours, and dries very rapidly. See note to ch. 145.—Translator.

#### Снар. 76.-Р. 50.

(1)—This passage confirms still more decidedly the opinion, that the lake which Cennino considered the best (ch. 44), was the lac lake (gomma lacca), since he says here, "Pagonazzo simigliante alla lacca."—Tambroni.

#### Снар. 77.—Р. 50.

(1)—This passage shews either the veracity of the author, or that the art had not then reached the perfection which it afterwards attained; for Vasari (Introduction to the Three Arts, chap. xix.), speaking of painting in fresco, censures retouching in secco, which he calls "cosa vilissima;" yet, nevertheless, if we examine minutely the fresco paintings of the best masters, there are very few, not even excepting those of Vasari himself, that we find exempt from retouchings in secco. Il Corradi used to retouch in oil, and Mengs with milk diluted with brandy (acquavite), as Requenos reports, Sul Ristabilm. &c., vol. i. p. 188.—Tambroni. Vasari (vol. ii. p. 529), speaking of his paintings in fresco in the chapel of S. Apostolo at Florence, says: "I made many experiments, in order to unite painting in oil with fresco, in which I succeeded perfectly."

But an attempt to mix liquid varnish with yolk of egg, to temper colours for finishing fresco painting, was not equally successful; for Vasari informs us that Alesso Baldovinetti painted, in a chapel of the Holy Trinity, some scriptural subjects from the Old Testament, which he sketched in fresco, and then finished in secco, tempering the colours with the yolk of an egg mixed with liquid varnish made on the fire, which tempera he thought would defend the paintings from being acted on by water; but the varnish acted too powerfully, for in many places where it was used freely the work scaled off; and so, when he thought he had discovered a rare and excellent secret, he found himself disappointed. Vas., vol. iii. p. 274.—
Translator.

## Снар. 78.—Р. 51.

(1)—Cignerognolo. This colour seems to have been a true grey, being composed of black and white.—Translator.

## Снар. 81.—Р. 51.

(1)—Berettino, an ash colour, the colour of an ass, a sort of neutral or quiet colour, much used by the old painters.—Translator.

## Снар. 82.—Р. 52.

(1)—This colour, also called *berettino*, differs from the last in the addition of red only to the black and yellow.—*Translator*.

#### Снар. 85.—Р. 53.

- (1)—The proportions in this colour, which the author calls *verdaccio*, are exactly similar to those of the colour he called *berettino* in chap. 81.—Translator.
- (2)—It would seem that this passage has been either corrupted by the amanuensis, or that there is an error on the part of Cennino, if we did not know that the masters of that period did not understand aerial perspective, as we discover by the works in which they have painted mountains and landscapes. We must invert the order of this last precept, if we would rectify the text; but if it be left to

stand as it now does, it may possibly add somewhat to the history of art.—Tambroni. It seems possible that, as, in historical pieces, the great lights and strong colours were reserved for the foreground, Cennino may have meant only that the distant and retiring colours should be made greyer or more neutral by using more of the black and white, and less of the ochre. In chap. 87 it is shewn that he had some knowledge of linear perspective.—Translator.

## Снар. 87.-Р. 54.

(1)—The allusion to the observance of linear perspective in this chapter is very apparent. The passage might have been made more intelligible; but as it proves the state of the science at that period, it was thought better to render it as literally as possible. Cennino alludes to the depression of lines above the level of the eye, and the elevation of those below the eye, until they meet in the point of sight on the horizontal line.—Translator.

## Снар. 89.—Р. 56.

(1)—As good and colourless oil is of the first importance to painters, no apology will be necessary for introducing in this place Leonardo da Vinci's method of preparing nut-oil. The recipe was found in his own handwriting, and is published in the Milan edition of his Treatise on Painting, by C. Amoretti, 1804. It is as follows: "The nuts are covered with a sort of husk or skin, which if you do not remove when you make the oil, the colouring matter of the husks or skin will rise to the surface of your painting, and cause it to change. Select the finest nuts, take off the shells, put them into a glass vessel of clean water to soften until you can remove the skin, change the water, and put the nuts into fresh water seven or eight times, until it ceases to be turbid. After some time the nuts will dissolve and become almost like milk. Put them then into a shallow open vessel in the air, and you will soon see the oil rise to the surface. To remove it in a pure and clean state, take pieces of cotton, like those used for the wicks of lamps; let one end rest in

the oil, and the other drop into a vase or bottle, which is to be placed about the width of two fingers below the dish containing the oil. By degrees the oil will filter itself, and will drop quite clear and limpid into the bottle, and the lees will remain behind. All oils are of themselves quite limpid, but they change colour from the manner in which they are extracted."—Translutor.

(2)—It is worthy of remark that Cennino here speaks of the art of painting pictures in oil as much practised by the Germans (Tedeschi), and therefore not of recent invention.—Translator.

## Снар. 90.—Р. 56.

(1)—Vasari, in his Introduction to the Three Arts, teaches, in chap. xxii., how to paint in oil on walls, but in a very different manner from this; for he requires that the wall should be dry, and that it should have a coat of linseed-oil, and then a mixture of resin, of mastic, and of fat varnish. He also teaches another method, which he had tried and approved of, in which it was necessary to give the wall two coats of the intonaco; but he always recommends that the wall should be perfectly dry. Here, on the contrary, Cennino points out a very simple method of painting in oil on damp walls, which may be painted on the next day. It concerns the modern artist to determine by experiments which is the best mode. —Tambroni.

## Снар. 91.—Р. 56.

(1)—Oil is always sold by the pound at Florence. The Florentine pound contains 12 ounces.—Translator.

#### Снар. 92.—Р. 57.

(1)—Leonardo da Vinci (chap. ccclii.) advises that pictures should be varnished with oil thickened in the sun.—Translator.

## Снар. 93.-Р. 57.

(1)—The oil mentioned by Cennino in the early part of this

chapter is the boiled or baked linseed-oil, for the preparation of which he had just given directions.—Translator.

## Снар. 94.—Р. 58.

(1)—From this it is still more evident that Vasari had never read Cennino's book, or he would not have mentioned painting on stones as a new invention in his time, as he has done in chap. xxiv. of the *Introduction to the Three Arts*, where he does not mention iron or glass, on which they painted in oil in Cennino's time.—*Tambroni*. "On these (that is, on some stones brought from Genoa) they (the artists of his day) had recently painted, and had discovered the true way of painting on them." *Vasari*.—*Translator*.

# Снар. 96.—Р. 58.

(1)—Leon Batista Alberti, in the beginning of book iii. on painting, gives almost the same precept. He says, that a generous disposition was a great assistance to a master in obtaining honour and acquiring riches, for from this liberality it oftentimes happened that the rich were frequently induced to give encouragement to the modest and good man .- Tambroni. Lanzi expresses the same sentiments in his eulogy of Correggio. He says: "Although we should admit the supposed poverty of this great man, it does not appear to me to be any discredit to him, but rather an honour, considering that he, although generally wanting money, painted with a splendour of which there is no other example. His pictures, whether on copper, on panels, or on well-chosen canvass, were really covered with a profusion of ultramarine, with lakes and beautiful greens; and he painted with a vigorous impasto and continual retouches, generally without taking his hand from the work, when he had once begun, until he had finished it; in a word, without any sparing of expense or time, of which he was more prodigal than any other painter. Now, this generosity would do honour to a rich gentleman who painted for his pleasure; how much more, then, is he worthy of praise whose means were so limited! To me it appears a great-

ness of soul that would do honour to a true Spartan." Lanzi, vol. iv. p. 65. Lanzi also remarks that the works of Vasari faded, on account of the bad colours he used (vilta di colori), vol. i. p. 187, and note.—Translator.

# Снар. 98.—Р. 59.

(1)—This constituted the verdetto, or verde santo, mentioned by Baldinucci in the *Vocabolario dell' Arte del Disegno*.

## Снар. 101.—Р. 61.

(1)—The glory, or nimbus, surrounding the heads of saints, is of very remote origin, since it is to be seen on many of the paintings preserved in Pompeii, particularly in the Circe and Ulysses, the Jupiter in the House of Ceres, and the Thetis dipping Achilles into the Styx. The glories in these pictures resemble solid plates of gold, the outer limb or circle being strongly defined, like those described by Cennino, and of which so many examples remain in the early paintings of Italy. They were sometimes of azure, instead of gold. The glory was defined by Servius to be "the luminous fluid which encircles the heads of the gods." The emperors assumed it as a mark of their divinity; and from them it passed, with many other pagan superstitions and customs, into the use of the church. The form of the glory varied at different periods; it was sometimes a plate of gold, ornamented with various devices, as may be seen in Plates II. VII. VIII. and IX.; sometimes it was radiated, and sometimes merely a circle of light above the heads of the figures, see Plates III. and IV.—Translator.

## Снар. 102.—Р. 61.

(1)—Gio. Batista Armenini, in his book *De veri Precetti della Pittura*, ed. Venez., p. 90, and in many other places, treats these old masters, from Giotto to Pietro Perugino, rather too severely, especially where, alluding to these raised diadems of plaster with the open work around them, and the stars of gold on the grounds, he

says, "e così si passavono con simile bassezze," &c. But he should have considered that these masters created the art, which, like all other worldly things, could not suddenly attain perfection, and that in many things they were never afterwards surpassed. Posterity, then, owes them both gratitude and respect; for without them we should never have painted, or written works on painting.—Tambroni. See note to chap. 124.

# Снар. 103.—Р. 61.

(1)—Painting in distemper, on which Cennino undertakes to speak, according to the testimony of Pliny (lib. xxxv. cap. 10), was invented by Ludius, a Roman painter who lived at the time of Augustus: "Non fraudando et Ludio D. Augusti ætate, qui primus instituit amænissimam parietum picturam, villas et porticus ac topiaria opera, lucos, nemora, colles, piscinas, euripos, amnes, littora, qualia quis optaret, varias ibi obambulantium species aut navigantium, terraque villas adeuntium asellis, aut vehiculis . . . idemque subdialibus maritimas urbes pingere instituit blandissimo aspectu minimoque impendio."—Tambroni.

#### Снар. 105.—Р. 63.

(1)—Cennino here gives a kind of treatise concerning different descriptions of glue, and the use that is made of them. He is the more prolix on this subject, as in those days glues were much used in painting in distemper. He seems, however, not to have known Flanders glue, mouth-glue, or that made from calves' feet; for which see Marcucci, Sag. Analit., p. 187, e seg. Vitruvius and Pliny often speak of the glue used by painters. The first (lib. vii. cap. 10) says, "reliqua tectores glutinum admiscentes in parietibus utuntur,"—the bricklayers use the remainder in walls, mixing it with glue. The second speaks of them in lib. xxxv. cap. 6.—Tambroni. Cennino does speak of "mouth-glue," but not of that kind now known as such, see chap. 108.—Translator.

## Снар. 106.-Р. 64.

(1)—Dioscorides (lib. v. cap. 121) teaches how to make glue for fastening stones; and says, that "si fa di colla taurina, di marmo, e della pietra chiamata pario." Hence, by pounded stone I think Cennino meant white statuary marble.—Tambroni.

## Снар. 107.-Р. 64.

(1)—Majolica was a sort of red ochre, of which vessels were made. Bole, a soft and glutinous kind of earth used in gilding. The best sort is brought from Armenia. It is of a dark red colour. The dictionaries do not distinguish it from sinopia; but it could not have been the same thing, although it greatly resembled it in colour and properties, since Cennino speaks of both without saying that they were synonymous. The colour, probably, constituted the only difference. Both were varieties of red ochre. See note to chap. 45.

The red letters common in old manuscripts and books were made with bole, which was also called *rubrica*; hence our term "rubrics."—*Translator*.

## Снар. 108.—Р. 65.

(1)—It will be seen from this chapter that isinglass was at this period used as mouth-glue.—Translator.

## Снар. 109.—Р. 65.

(1)—Colla di caravella is still called in many parts of Italy colla forte. It seems that the word caravella, which is not to be found in the dictionaries, is derived from capretta, caprella, cavra, or cavrella, from which we have caravella. The author here calls it also colla di spicchi.—Tambroni.

# Снар. 110.—Р. 66.

(1)—There is apparently no difference between these last two kinds of glue, except that the first is not quite so strong as the second. This resembles the English glue.—Translator.

## Снар. 111.—Р. 66.

(1)—Vasari, in the Introduction to the Three Arts, &c. says, that the old masters tempered their blues with glue (colla di carnicci) only, because the yellow colour of the egg would have caused them to become green. But our author, who had more practice, assigns here other reasons. In chap. 141, he directs us to temper ultramarine with a very small quantity of yolk of egg; not so in chap. 83, where he desires that the blue should be tempered with the entire yolk of an egg, which should be one laid by a hen fed in a town, because such are paler.—Tambroni.

## Снар. 112.—Р. 66.

(1)—It is here repeated that the fourth book ends here. Perhaps it is an error of the amanuensis, who read fourth for fifth. It is to be observed that this fifth book is very short. Henceforward there are no more divisions into parts of the book. But this is of little importance, since the chapters are numbered to the end.—

Tambroni.

(2)—This cheese-glue was formerly used to a great extent. The panels used for painting were fastened together with it; and so exceedingly firm did it hold, that those were considered the strongest panels which consisted of several pieces of wood joined. These were less liable to split than those which were made of a single piece of wood: most of the recipes add sufficient water to make the cheese and lime into a paste.—Translator.

## Снар. 113.--Р. 67.

(1)—This is another instance of the care with which the old masters guarded their pictures and pigments from the contact of iron. See chap. 36 ante, and chap. 136 supra.—Translator.

#### Снар. 115.--Р. 68.

(1)-Leonardo da Vinci sometimes painted on canvass on which

no ground of plaster had been laid, the canvass being merely washed with weak glue. That pictures so painted are durable is proved by the existence of one in the Collega Mussi at Milan, which is evidently by the hand of Leonardo, and is considered worthy of his great name. See Amoretti's edition of the treatise of Leonardo on Painting.—Translator.

(2)—This word mesella is not to be found in the dictionaries. From the description which the author gives of it in this chapter, it may be seen that it was a knife, the blade of which was large and convex, and was used as a rasp. The Germans have messer, which signifies knife; but the term is general, and messertin is the diminutive. In chap. 121, Cennino repeats mella, and not mesella. If this word be not derived from the German (for that people then, as well as at the present time, carried on a large commerce in wrought iron), I know not whence it is derived. It is, however, sufficient to understand the meaning. It is true that the monk Theophilus (lib. ii. De Opere Interasili), in describing the chisel, says, "Deinde habeas ferros graciles et latiores, secundum quantitatem camporum, qui sunt in una summitate tenues et acuti, in altera obtusi, qui vocantur meziel,"-"then you may have some iron tools thin and broad, according to the size of the grounds, which are thin and sharp at one end, and blunt at the other, which are called meziel." Perhaps this word is somewhat akin to mesella.—Tambroni.

The word mella is of Venetian origin. See Cicog., vol. iii. p. 248.

—Translator.

Снар. 121.—Р. 72.

(1)-Raffietto: the word is explained in chap. 115.

Снар. 124.—Р. 74.

(1)—Rosini (vol. iii. p. 51) has the following remarks relative to this practice of executing some parts of pictures in relief. "This particularity is to be found in the picture painted by Gentile da Fabriano for the Santa Trinità, now in the Florentine gallery; and this practice is thus alluded to in the *Anonimo Morelliano*, p. 57:

'The head, covered with a hood, with a cord of seven paternosters in the hand, fat and dark, the lowest and largest of which is of stucco in relievo, and gilded, was by the hand of Gentile.' And this particular manner of introducing relievos into pictures was continued by his most famous disciple, as we learn from a manuscript preserved in the library of the Conti Silvestri di Rovigo, that Jacopo Bellini painted in the dome of Verona a crucifixion, with many figures, with relievos and gilding after the ancient manner." Ricci, p. 173.—Translator.

(2)—Such figures are not uncommon among the Italian masters; and their introduction into pictures appears to have been sanctioned by the Romish church, since we find the following passage in the Elémens de Peinture, by De Piles. "The holy Scriptures speak in many places of the appearance of God to men, both actually by the ministration of angels, and in visions by dreams and trances. There is a beautiful description of God under the name of the Ancient of Days in the 7th chapter of Daniel, ver. 9. The same Scriptures mention several apparitions of angels in human forms. For this reason, the church, in the Council of Nice,\* did not hesitate to permit painters to represent God the Father under the form of a venerable old man, and angels under human forms. . . . But what is permitted not being always appropriate, the painter should use with moderation the authority derived from the holy Scripture, and be careful that, in availing himself of the highest resources of his art, he does not infringe upon the truth and sanctity of his subject." De Piles, Elémens de Peinture, pp. 416, 423, ed. Amsterdam and Leipsic, 1766.—Translator.

(3)—In the third volume of his Storia di Scultura, p. 137, 2d edit., Count Cicognara mentions a curious and most valuable picture, painted in 1369, by that famous Lorenzo of Venice, for whose celebrated picture of S. Antonio del Castello, now in the Academy, painted in 1358, three hundred gold ducats were paid; and of whom

<sup>\*</sup> The Second Council of Nice, in which the advocates of image-worship triumphed.—Translator.

Zanetti speaks with such ecstacy in the first volume of his *Pittura Veneziana*, which is illustrative of this chapter, as well as of chapters 142 and 143. He gives the following account of it. It represents the Redeemer seated, presenting the keys to St. Peter; and has this inscription:

## MCCCLXVIIII. MENSE JANUARII LAURENTIUS PINXIT.

"But this picture having a semicircular form in the upper part, and the panel being quadrangular, the two corners are excluded from the semicircle, and are covered only by the ground or preparation of In these spaces, which we may call lost (perduti), the painter has tried his colours, and made marks at random with his pencil, which, it is evident, from the proofs to which they were subjected, were done in distemper; the picture also appeared to have been painted in distemper, unless, indeed, a varnish or oily preparation had been spread over it to raise the tone of the colours and preserve them to the present time in perfect freshness. This picture is an example that distemper was used in the first instance; but we also see that other manners of colouring were then employed; for on the gold ground, the glory, and drapery of the Redeemer, are painted ornaments and coloured gems, not in distemper, but as if they were crystallised with some other transparent and glutinous substance, strongly attached to the gold ground, to which the vehicle used in distemper-painting would not have adhered; and the colours used in these ornaments are evidently ground and prepared with the same oil or varnish which was spread over the whole picture. This easy and clear investigation developes several methods of painting employed on the same picture, which vary from those we find used by Tomaso da Modena, which appear to have been, from the first, entirely painted in oil,—a fact the chemists employed by Lanzi to examine them dare not contradict. On the gesso some painters, but not all, used distemper, which could not be laid upon the gold (che non potevano mai adopirare sull' oro), which was shaded with sinopia (rubricato) in the manner directed by Theophilus. But it is indeed difficult to analyse the works which are covered with the varnish (patina) of five centuries. And when we have discovered, as is indeed beyond doubt, that every very ancient picture is saturated with an oily and resinous substance, who will be fortunate, or, to speak more correctly, bold enough to dare to determine whether this oil or varnish were laid over colours first diluted and prepared with water, or whether they were immediately ground up and cemented with it? A fine intonaco of mineral colours, painted in distemper on a picture, when dry, presents to oils and varnishes a surface which they may penetrate in the same perfect manner as if they were ground up in them. Mineral colours ground in water remain porous and absorbent after the evaporation of the moisture; and their tone appears cold and languid if they are not united and saturated with oily substances, which can be spread over them, and which invest them with a splendour and warmth of tone, a juiciness, in fact, differing in no degree from the oil with which they might have been ground in the first place."

The picture of Pan teaching Apollo to play on the Pipes, by Annibale Caracci, in the National Gallery, is painted in distempercolours, but has been saturated with oil.

The opinion that distemper-painting could not be practised on gold grounds appears to be erroneous, since Cennino recommends that the grounds of all paintings in distemper should be covered with gold (chap. 138), where the expense can be afforded. And in chap. 141, he directs that red and blue draperies are to be laid on a gold ground, the gold in the last case merely covering the part occupied by the drapery. The translator refers the reader to the Preface, and also to Rosini's Storia della Pittura.—Translator.

## Снар. 131.—Р. 77.

(1)—The art of gilding with bole was, if we may believe Vasari, invented by Margaritone, who was living in 1270. Vasari, vol. ii. p. 64.—Translator.

## Снар. 133.—Р. 78.

(1)—The practice of gluing cloth on panels in order to prevent their splitting and opening, or starting after being glued, was attributed by Vasari to Margaritone; but the researches of Rosini and others have proved that it was in use previous to the time of Giunta (A.D. 1202), as appears from various pictures of our Saviour in the Greek style, still preserved in Pisa. Rosini, vol. i. p. 85, and note 32, p. 195, &c.—Translator.

# Снар. 138.—Р. 81.

(1)—Gold grounds were formerly so much used that there was a regular manufactory of them, and the maker put his name on each. The work of Cennino is evidence of the high estimation in which they were held, and also that where expense was an object, the gold was only used on the ornamental parts. On walls, gilded tin was frequently substituted for it. Many of the most ancient pictures of the Italian and Greco-Italian schools mentioned by Rosini (Storia della Pittura) as still in existence, and frequently in a high state of preservation, are painted on gold grounds. The illuminations, also, of manuscripts of this period are painted on gold grounds.

Rosini remarks (vol. i. p. 117) of a picture of the Greek school anterior to Giunta, "that, in addition to the linen cloth that was stretched over the panel, gold-leaf had been spread over the gesso, as might be seen in some parts where the colour had fallen off. This indicates both the great care with which it was executed by the painter, and the merit of the artist, who was esteemed, by the religious persons who had ordered the work, worthy of colouring upon gold. In all probability the author of this picture was the Greek master of Giunta." Sometimes, as in the case of the picture by Ugolino di Maestri Vieri, the figures were painted in chiaro-scuro only on the gold ground (Rosini, vol. iii. p. 80). Of much earlier antiquity is the painting in Pompeii of Jupiter in a contemplative attitude, the eagle at his feet, and his golden sceptre in his hand.

His head is surrounded by the *glory* or *nimbus*. The throne and footstool are *gold*, ornamented with precious stones. Gold is also introduced into other pictures preserved in this city. See Art. Pompeii, *Lib. Ent. Knowledge*, vol. ii. p. 87, &c.

The gold ground had many advantages. It preserved the colours from contact with the plaster (gesso) ground of the picture. It is not acted on by any thing but nitric acid. From its extreme ductility and tenacity, a smaller quantity of this metal will cover a larger surface than any other metal, without becoming honey-combed; and its reflecting power, when burnished, gives a great brilliancy and clearness to the colours. "Corradi was the first," says Vasari, "who left off gold fringes and other ornaments, and imitated gold with colours; and though the practice of imitating gold with colours became universal, many artists, who regarded the durability of their pictures, continued to paint on a gold ground. The two ceilings painted on a ground of gold-leaf, by Raffaello, are well known. Poelemburg, Maas, Elliger, John Van Kessell, Rembrandt, and Ostade, frequently painted on gold grounds; and such pictures are always remarkable for the clearness and brightness of the colouring. Indeed, the Flemings preserved the early manner of painting much longer than the Italians, who, it seems, often changed their vehicles and grounds."

The want of good and brilliant yellows has been assigned as the cause of the employment of gold grounds and ornaments in pictures; but when it is considered that with the ochres, Naples yellow, and white, the brightest gold may be imitated, I think it will be conceded that other and powerful reasons must have led the old masters to the adoption of this metal for the grounds of their pictures. Experience has proved that pictures so painted are more durable than others.

It is a mistake also to suppose that the old masters did not possess brilliant yellows, since Cennino mentions orpiment and zafferano, although he discountenances the use of them, by reason of their want of durability. Orpiment also was known to the ancients, by whom it was called auri pigmentum, whence our word "orpiment."

It is almost superfluous to say that grounds covered with gold-leaf must have been non-absorbent.—Translator.

## Снар. 139.—Р. 82.

(1)—Cennino complains that goldsmiths made from a ducat or zecchini 145 leaves of gold instead of 100, when it is to be used for gilding flat surfaces. Vasari, in the *Introduction to the Three Arts*, chap. xxviii. says, "that in his time 1000 pieces were worth six crowns, or about three ducats, including the labour." According to the wishes of Cennino, about 300 pieces (nearly half the quantity mentioned by Vasari) should have been made from these six crowns; but according to the custom, at which he hints, 435 were made. Perhaps it is on account of the greater thickness of the gold-leaves that the very old pictures look as if they were covered with a plate of gold. If our author had mentioned the size of the pieces of gold, as Vasari has done, who says, "each side was about the eighth part of a braccio in length," we should have been able to make a more exact estimate, and form a more correct judgment on this subject.—*Tambroni*.

## Снар. 140.—Р. 83.

The glories in the opposite figures, by Squarcione (Plate IX.), as well as those in Plates II. and VII., will assist in illustrating this chapter. The alteration which afterwards took place in the form of the glories is shewn in the Plates III. and IV., after the designs of Raffaello.—Translator.

## Снар. 141.—Р. 83.

- (1)—The succeeding titles to the chapters are wanting in the text, but have been supplied by the editor.—Tambroni.
- (2)—Cennino does not say, although there seems little doubt of the fact, that the paper on which the design has been pricked is to be laid on the drapery, and that the powders are then to be sifted or rubbed over, as in oriental tinting or stencil painting. In the

Elémens de Peinture, by De Piles, full directions are given for this process, which the French called "patronage," and which we are told was much used in illuminating missals and other books.—Translator.

# Снар. 142.—Р. 84.

- (1)—Grattare apparently means to scratch or engrave lines through the paint, but not through the gold ground, which therefore became visible, and then to smooth the edges with the flat end of the stile; and granare, to mark a kind of figure or pattern on the gold with a sort of spur of iron in use in those times. The instrument with which this was done was called a rosetta; and see the word granire in Baldinucci's Vocabulary of the Arts of Design.—Translator.
- (2)—This is an exact description of the stile used by the ancient Greeks and Romans in writing and drawing. It appears from the above passage that Cennino used the flat end of the stile to soften the edges of the parts scratched up with the pointed end, as well as to remove the colour from particular parts of the picture.—Translator.
- (3)—Allacciato, lacci, laccio, are really words unknown to us; and I should consider them as errors of the amanuensis, if they had not been repeated in the following chapter (143), where, in the second paragraph, Cennino himself points out their meaning, saying, "granare i lacci, cioè i lavori disegnati." At first I thought he meant by the terms allacciato e lacci the draperies or vestures; but in the fifth and seventh paragraphs he distinguishes one from the other. I now think that by lacci he meant those ornaments or minor parts which are at present called accessories.—Tambroni.

After much consideration, I attach a different meaning to these words, and am of opinion that Cennino meant to describe in these two chapters what we now call figured draperies; and that by the terms allacciato e lacci he meant the patterns or ornaments which were painted on them, or, as he expresses it in the first paragraph, "relevare con foglie e con pietre legate di più colore," that is, arabesques or leaves and flowers executed in relief, and coloured

stones fastened to the draperies (see note to chap. 124), which must certainly signify representations or patterns worked or embroidered on them. The modern Italian word rabesco seems exactly synonymous with the allacciato e lacci of Cennino, as will appear from the following passage from Rosini (Storia della Pittura, vol. i. p. 205): "E questa virgine ricoperta d'un manto d'oro rabescato d'un azzurro chiaro, come ornato di aurei rabeschi è l'estremità della veste intorno ai polsi." An engraving in outline is given in Rosini's work of the picture here alluded to, which is called the Vergine delle Volte. It was painted in 1297, and is the most ancient painting in Perugia. The drapery is divided into a number of squares, each filled with the same pattern, and we can imagine it to have been produced by laying on the picture a piece of paper, on which the pattern had been previously pricked or cut (see chap. 141), and rubbing another colour over it, which of course would only adhere in those parts unprotected by the paper. Rosini speaks of other pictures painted in this manner, which appears to have been very common among the early painters. It is to be observed, that if draperies be painted as Cennino directs, the patterns will appear raised or embroidered, their colour being of a shade different from that of the ground on which they are painted. It would seem also from this chapter, and from the instructions given in the third paragraph, "granarlo a relievo," that some part of the pattern was marked or stamped on the gold. The term "accessories" appears to me to convey a very different meaning from what Cennino intended to express by allacciato e lacci; and if there were any doubt on this point, I think it would be removed by observing that the lacci are to be of the same colour as the campi, although of a different shade, which can never take place with regard to the accessories, except in monochromatic painting, which could not be performed in the manner here described.—Translator.

NOTES.

#### Снар. 143.—Р. 85.

(1)—This chapter throws great light upon the history of the art, and removes any doubt respecting the old pictures in distemper;

and it also settles the question concerning the art of painting in oil, as I have mentioned at greater length in the Preface.—Tambroni.

I must here notice the remarkable practice of painting part of the drapery with the colours tempered with yolk of egg, and glazing the whole with colours ground in oil (see the fourth and eighth paragraphs), thus uniting painting in distemper with painting in oil. In the course of the work many more instances will be noticed of using different vehicles on the same picture. This point is the more worthy of notice, as the propriety of using different mediums on the same picture has recently been much discussed. It would seem from this chapter not to have been injurious. I have before alluded (note to chap. 77) to Corradi's practice of retouching fresco paintings with oil, and Vasari's experiments in uniting oil and fresco, in which he says he succeeded. The paragraphs are not numbered in the text, but I have done so for the convenience of reference.—

Translator.

## Снар. 144.—Р. 86.

(1)—We must here remark the direction of Cennino to mix indigo with bianco sangiovanni, thus proving that this colour may be used with lime in fresco. Another point worthy of notice is, that he did not consider it necessary to add any driers to the oil when glazing with lake ground in oil.—Translator.

## Снар. 145.—Р. 87.

(1)—This kind of painting (distemper) is very durable, provided it be not exposed to the air or damp; one colour can be laid over another with more facility even than in fresco-painting, without any fear of mixing the colours; and the facility with which pictures painted in distemper can be painted and retouched in secco, enables us not only to finish them highly, but to leave them for any length of time, and complete them at our leisure. The lights in distemper-painting are as bright as those in fresco, but the dark colours have more depth. The egg-vehicle, used in the proportions recommended by Cennino, will be found to work very pleasantly; and when glue

is necessary to be substituted for it, the reader has only to turn to chap. 111, where full directions for preparing and using it will be found. To unite the tints when finishing, it is only necessary to dip a brush in clean water, or sometimes, as in fresco-painting, to hatch and work on the tints with a colour partaking of both, or, still better, to use first one colour, and then the other, until the desired effect is produced. For example, if red is to be united with blue, it should be done by working on the edge of the blue with red, and on the edge of the red with blue,—on the principle that grains of red and blue pigments, when mixed together, appear purple only because we cannot with the naked eye distinguish the points which reflect blue from those which reflect red; but if examined with a powerful microscope, the distinct red and blue moleculæ will be visible. "When," observes Dr. Ure, "we examine certain grey substances, such as hairs, feathers, &c., with the microscope, we see that the grey colour results from black points disseminated over a colourless or slightly coloured surface." Thus we perceive that nature forms her compound colours by stippling one colour into another; and accordingly it has been found that those paintings have appeared most brilliant in which the effect has been produced by stippling with the pure colours, instead of mixing compound See Field's Chromatography.

One of the greatest advantages of painting in distemper is, that expose it to what light you will, the effect is always good, as it does not shine like an oil-painting. When the colours are dry, they never change, and always remain in the same state as long as the ground lasts. It must, however, be remembered, that colours mixed with glue will dry lighter; the effect of these may therefore be previously ascertained, by trying the tints on a piece of wood prepared with a ground similar to that of the picture, or on a piece of strong white paper.

Painting in distemper cannot, however, be employed on the ceilings and domes of large churches, because couches of plaster cannot be laid on vaults of stone, the saltpetre of which would cause the plaster to scale off. It is for this reason that in such places fresco painting is generally used on a couch of mortar, which incorporates better with the stone; but the latter kind of painting is much inferior to distemper in the force and vivacity of the colours. See *Elémens de Peinture*, by De Piles.—*Translator*.

- (2)—Two exceptions only are mentioned here; but as the third is added, I have changed the text.—Translator.
- (3)—A long note follows in the Italian edition, the purport of which is, to prove that the word in the text is bisso (purple), and not biffo, which has no meaning. As the signification of the sentence cannot be mistaken, I have omitted it.—Translator.

## Снар. 146.—Р. 89.

(1)—See a former note on this subject.—Translator.

## Снар. 151.-Р. 93.

- (1)—Vasari (Introd. to the Three Arts of Design, chap. xxviii.) speaks of the mordant made of white of egg, water, and Armenian bole as the best for laying gold on pictures, and the same is taught by Cennino in chap. 131. In the time of Vasari, gold was no longer in use; and this is the reason why Cennino was so much better informed on the subject of mordants. He gives a recipe for another mordant made with garlic.—Tambroni.
- (2)—By the ring-finger (dita anellario, cioè col polpastrello) is here meant the fore finger, because in those times the ring was worn on that finger, as may be seen in pictures of that date.—Translator.

#### Снар. 155.—Р. 95.

(1)—The silence of Cennino concerning the nature of this varnish is really to be deplored. This chapter removes all doubts respecting the question whether pictures in distemper were or were not varnished. Count Cicognara, in his celebrated work on the history of sculpture, lib. iii. cap. xi. vol. i. p. 331, e seg., is right when he says that pictures in distemper were painted in many ways

by those old masters, and were afterwards covered with varnish. Armenini (book ii. cap. ix.) describes several kinds of varnish. The most ancient, he says, was made of olio d' abezzo (resin of the pine) and olio di sasso (naphtha), spread over the picture, previously warmed in the sun by the hand, as described by Cennino; and this kind of varnish, says Armenini, was penetrating and bright.—Tambroni.

I think it will be apparent from the text that the varnish mentioned by Cennino could not have been made of resin and naphtha, since he says, "If you wish the varnish to dry without sun, boil it well first"—bollila bene in prima. Now, I am not aware that the fire has any action upon resin besides that of melting it and of converting it into colophonium (black resin); and it is quite certain that naphtha, both from its liquid state and inflammable and volatile nature, will not bear boiling. It is highly probable that the varnish consisted of some resin dissolved in linseed oil, and was, perhaps, that described by Theophilus in the Treatise on Painting, mentioned in the Introduction, the chief ingredient of which has hitherto eluded the research of modern inquiry. I give his two recipes, that the reader may judge for himself:

"Pone oleum lini in ollam novam parvulam, et adde gummi quod vocatur fornis, minutissime tritum, quod habet speciem lucidissimi thuris, sed cum frangitur fulgorem clariorem reddit; quod cum super carbones posueris, coque diligenter sic ut non bulliat, donec tertia pars consumatur; et cave a flamma, quod periculosum est nimis, et difficile extinguitur si accendatur. Hoc glutine omnis pictura super linita lucida fit et decora ac omnino durabilis.

"Compone quatuor vel tres lapides qui possent ignem sustinere ita ut resiliant, et super ipsos pone ollam rudem, et in eam mitte supradictum gummi fornis, quod Romana glassa vocatur; et super os hujus ollæ pone ollam minorem, quæ habeat in fundo modicum foramen. Et circumlineas ei pastam, ita ut nihil spiraminis inter ipsas ollas exeat. Habebis etiam ferrum gracile manubrio impositum, unde commovebis ipsum gummi, et cum quo sentire possis ut omnino liquidum fiat. Habebis quoque ollam tertiam super car-

bones positam, in qua sit oleum calidum, et cum gummi penitus liquidum fuerit, ita ut extremo ferro quasi filum trahitur, infunde ei oleum calidum, et ferro commove, et insimul coque ut non bulliat, et interdum extrahe ferrum et lini modice super lignum sive super lapidem, ut probes diversitatem ejus; et hoc caveas in pondere ut sint duæ partes olei et tertia gummi. Cumque ad libitum tuum coxeris diligenter, ab igne removens et discoperiens, refrigerari sine."

Thus translated:—"Put some linseed oil into a small new jar, and add, very finely powdered, some of the gum which is called fornis, which has the appearance of the most transparent frankincense, but when broken has a brighter polish; which place on the coals, and cook it carefully, so that it does not boil, until a third part is evaporated; and beware of its catching fire, which is very dangerous, and difficult to extinguish if it once catch fire: when the whole picture is covered with this varnish, it becomes bright and shining, and altogether durable.

"Put three or four stones which can stand the fire so that they may project over it, and upon them put a rough pipkin, into which put some of the aforesaid gummi fornis, which is called Romana glassa; and on the mouth of this pipkin put a smaller pot, which has a hole in the bottom. And you must lute it round, so that there be no aperture between the jars. You must also have a thin iron rod in a handle, with which to stir up the gum itself, and ascertain whether it be quite liquid. And you must have a third jar placed upon the coals, in which there is some hot oil; and when the gum is quite liquid, so that it can be drawn in a thread from the top of your rod, pour into it some hot oil, and stir it about with your rod, and at the same time cook it, so that it does not boil; and sometimes draw out your rod, and spread a little on some wood or on a stone, that you may try whether it be smooth; and you must take care of this, that there be two parts by weight of oil, and the third of gum. And when you have diligently cooked it, as much as you think proper, take it from the fire, uncover it, and allow it to cool."

In the absence of positive information on this subject, I may be permitted to hazard a conjecture, derived from the word itself, as to the nature of this varnish. The monk Theophilus, mentioned in the preface, uses many words to which he gives an Italian termination, as Count Cicognara informs us (Storia di Scultura, vol. iii. p. 248, second edit.): he instances (among others) the words glutine vernition and glassa. The former (glutine vernition) is clearly derived from the Latin vernix, vernicis (from whence, by an easy transition, we have fornis, and our English word varnish), the resin which exudes from the juniper-tree (juniperus communis), common in all parts of Europe. The resin is called sandarac; and some of our earliest varnishes are known to have been made of it. "If," says Raffaello Borghini, in his Riposo, "you would have your varnishes very brilliant, use much sandarac." The vernice da scrivere, mentioned by Cennino, chap. 10, consisted of pounded sandarac, and was used to spread over the carta bambagina, previous to writing on, by the early Italians and the Arabians; and it is still used to sift over writing, under the name of pounce. That this gummi fornis was a resin is proved by its melting over the fire. Cicognara and Merimée consider it to have been copal; but as that is brought from America, it could not possibly have been known to Theophilus, who lived between three and four hundred years previous to the discovery of that country. The circumstance of the gum being glutinous, and hanging in threads from the rods, proves that it was not borax, as some have conjectured. For although borax melts on exposure to heat, and becomes liquid, but not glutinous, it passes quickly from that state, becomes calcined, and then melts rapidly into glass, which is soluble in water, but not in oil. An additional reason, also, for supposing this glutine vernition to have been sandarac, is, that old Italian writers constantly speak of the varnish used for pictures under the term vernice liquida, thus shewing that the word vernice wa applied to the gum or resin when in a liquid state, and contradistinguishing it from the vernice da scrivere, which was the

dry sandarac in powder. The word glassa is derived from the Saxon glass, and has been Italianised by Theophilus. The reader will notice the strong similarity in the mode of preparing this varnish to the directions given by Cennino in chap. 91 for preparing boiled oil for mordants. One varnish, described by Armenini, appears somewhat to have resembled the varnish mentioned by Cennino. To the practice of warming and drying the pictures in the sun, which was practised by Raffaello and Correggio, when varnishing them, we owe the invention, whatever it was, of Van Eyck; for that he did change the practice of painting in oil is certain, while it is equally certain that painting in oil was known and practised several centuries before his time. Correggio is said to have used a varnish made of resin and naphtha; and varnishes made with naphtha are now in use in the British navy. I believe the reason they are not in more general use is, because the naphtha has been found injurious to the eyes .- Translator.

(2)—That is, until the colours have become perfectly firm and consolidated.—Translator.

(3)—Some of the greens in the old pictures are very bright and pure.—Translator.

## Снар. 156.-Р. 96.

(1)—It is not uncommon, at the present time, to varnish pictures intended for exhibition with the white of an egg, which may afterwards be easily removed with a wet sponge.—Translator.

# Снар. 157.—Р. 96.

(1)—This word, asiso, is not found in the vocabularies. However, the word is used in some places. Baldinucci, in his Vocabulary of the Arts, speaks of many kinds of gesso, but not of this. Armenini, chap. viii. book ii., says, he has seen the Flemings mix gesso and biacca in the proportions mentioned by our author; but he does not speak of the sugar, instead of which he substitutes NOTES. 163

orpiment; but he gives no name to this kind of gesso, the effect of which, he says, is very dazzling, light, and good.—*Tambroni*. The word asisa may be found in Veneroni's *Dictionary*, with the following meaning attached to it in French: "Couche ou assiste de couleurs, appliqué sur l'or pour dorer."—*Translator*.

# Снар. 159.-Р. 98.

(1)—This colour is the *oro musivo* described by Marcucci, Sag. Analit. p. 80, 81; but the recipe for making it, and the method of using it on pictures, are different from those given by our author.—
Tambroni.

### Снар. 160.-Р. 98.

(1)—Vasari, in chap. xxviii. of the *Introduction to the Three Arts*, in his recipe for grinding gold, does not speak of the white of egg or of tempera, but directs that honey and gum should be used. Cennino uses gum for painting in miniature only.—*Tambroni*.

### Снар. 161.-Р. 99.

(1)—This chapter makes us acquainted with a singular practice of this period, namely, that of painting the human face not only in distemper, but also in oil and in varnish. To my knowledge no other writer has ever mentioned a similar custom; which will lead us to believe that painters were sometimes required to perform this office. It is true that we find Pandolfini, Of the Government of the Family (ed. de Clas. Ital. p. 142, 143, e seg.), advises his wife not to paint herself with lime or poisons; and for this purpose he always uses the phrases, maruri il viso, impiastrarsi, intonacarsi, impomiciarsi, &c.; and he says that his wife would be ashamed to be without this painting on her face when she was with other women.— Tambroni.

## Снар. 164.—Р. 101.

(1)—These were different styles of head-dress in use at that time, examples of which may be seen in the plates to Vasari's *Lives of the Painters.*—Translator.

### Снар. 166.—Р. 102.

(1)-This gesso bolognese, or volterrano, is prepared from the white alabaster procured from quarries in the neighbourhood of Bologna and Volterra. The quarries at the latter place were known to the ancient Etrurians, and were worked by them. Winkelman (vol. i. p. 147, Ital. ed.) mentions four sepulchral urns made of this material, which were found in the neighbourhood of the city, and which are now in the Villa Albani. Vasari's account of this gesso volterrano, and the manner in which it was used, is as follows: "Andrea (Verrocchio) took much pleasure in making models of that kind of plaster (gesso) which is made of a soft stone found in Volterra and Siena, and in many other parts of Italy; which stone, burnt in the fire, and then pounded and made into a paste with cold water, becomes so supple that you may make what you please of it; and afterwards it becomes so hard and firm that it may be used for making casts of whole figures. Andrea then used to form models of natural objects, namely, hands, feet, knees, legs, arms, and bodies, from such casts, for the convenience of having them always before him, so that he might imitate them. In his time began the practice of taking casts of dead persons, at a small expense; so that there might be seen, in the passages, doors, windows, and cornices of every house in Florence an infinite number of these casts, so well and naturally done that they appeared alive. And from that time forward the practice was and is still followed; and very useful has it been to us in procuring many of the portraits which are placed in the palace of the Duke Cosmo; and for this we are greatly indebted to the skill of Andrea, who was the first who made use of it."-Life of Andrea

NOTES. 165

Verrocchio. Andrea can certainly claim the merit of having been the first who made casts of the dead, since the process of taking them from living models only is described by Cennino, who does not claim the invention. Andrea died in 1488. The same gesso volterrano was also used for the grounds of pictures; but for this purpose it does not appear to have been burnt. See chap. 115.—Translator.

(2)—From this passage, as well as from the remaining part of the work, we obtain much information relative to the art of statuary at this period. The precautions to be observed with regard to illustrious persons, as taught by Cennino, could not have been his own invention, but rather the result of experience, which he had learned from his master, and which was preserved as a tradition in this school. The art of taking a cast of a head, and of the whole figure, shews that the inventions could not have been recent; and we cannot but think that Nicolo Pisano, and the other sculptors who were contemporaries of the author, adopted the same plan.—Tambroni.

# Снар. 171.—Р. 106.

(1)—Vasari speaks, in chap. xi. of the Introduction to the Three Arts, &c., of making moulds of ashes for taking casts with metals; but he does not tell us how they are done. He says: "And what is more, some earths and ashes, which are used for this purpose, are of such fine quality, that casts are made from them, in gold and silver, of sprigs of rue and other small herbs, and beautiful flowers."—Tambroni.

A substance much resembling these ashes was found in some vaults below a room in Pompeii, covering to the depth of several feet the skeletons of seventeen persons. "The ashes were of extreme fineness, evidently borne in through the vent-holes, and afterwards consolidated by damp. The substance thus formed resembles the sand used by metal-founders for castings, but is yet more delicate, and took perfect impressions of every thing upon which it lay. Unfortunately, this property was not observed until almost too late,

166 NOTES.

and little was preserved except the neck and breast of a girl, which are said to display extraordinary beauty of form. So exact is the impression, that the very texture of the dress in which she was clothed is apparent, which, by its extraordinary fineness, evidently shews that she had not been a slave, and may be taken for the fine gauze which Seneca calls 'woven wind.' On other fragments the impression of jewels worn on the neck and arms is distinct." Lib. Ent. Knowledge, Art. Pompeii, vol. ii. p. 239.—Translator.

# INDEX.

Aerial perspective, not understood by the old masters, 139.

Agnolo Gaddi, son of Taddeo Gaddi, 2; master of Cennino, ib.; his character as an artist, 42, 135, 136; died in 1387, 136.

Air, pure, impure, and damp, its effect on colours, xi.

Alberti, Leon Batista, recommends liberality to painters, 142.

Albumen: see White of egg.

Allacciato, laccio, lacci, 84; supposed meaning of the term, 154.

Alphonso, king of Naples, began to reign in 1442, xlix.; account of the picture sent to him by John Van Eyck, xlvii. xlix. liv. lxviii.

Amatita, or matita, probably the hæmatite, 120, 121.

Amatito, nature and properties, 24, 80; derivation of the word, 120; was probably native cinnabar, 121.

Anatomical science, at a low ebb in the days of Cennino, 137.

Ancona, derivation of the term, 113.

Andrea Castagno, pupil and reputed murderer of Domenico Veneziano, by what motive instigated, xlvii. xlix.; date of one of his pictures, lxvi.

Antonello da Messina, his claim to the introduction of painting in oil into Italy considered, xlvii. et seq.; his

pictures at Venice dated 1474, xlix.; his epitaph, lviii. lxix.

Apothecaries, supplied the painters with their materials and pigments, xxxvii., 9, 23.

Archil (see Litmus), how and from what prepared, 132.

Armenini, Gio. Batista, critique on his work, *Delli veri Precetti della Pit*tura, xxxiv.

Arricciato, 134.

Arts, what motives induce persons to follow them, 3; what things are necessary in the pursuit of them, ib.; into what parts and members divided, 4; design and colouring the foundation of them, ib.

Arzica, its nature and properties, 28, 126.

Ashes, to make impressions of seals or coins in a paste made of, 106; also small figures, plants, 107; how used for taking casts, 165.

Asiso, of what composed, 162.

Azzurro della magna, German or cobalt blue, its nature and properties, 32, 128; to paint a drapery of, 52; a substitute for ultramarine, 89; zaffre and smalt prepared from the same ore, 128; is different from the modern cobalt-blue of Berlin, &c., ib.; the presence of nickel gives it a purple tint, frequently observed

in old pictures, and very durable, 129.

Baldinucci, his account of Cennino, xxviii. xlv.; his account of the invention of painting in oil, lvi.

Bandini, his opinion of Cennino's work, xxvii.

Belli, Giambatista, his character of Giotto as an artist, 109.

Berettino, 51, 52; what colours included under this term, 139.

Biacca, white lead, its nature, properties, and use, xiv. 9, 16, 32, 128.

Bianco sangiovanni, its nature, properties, and use, 31, 127, 128.

Bianco di travertino, burnt or baked; directed to be used by Vasari in fresco-painting instead of bianco sangiovanni, 137.

Bisagni, Francesco, critique on his work on painting, xxxv.

Bisso, purple, to paint drapery of this colour in distemper, 89.

Black pigments, and their preparation, 21, 22; carbonaceous blacks have a preserving influence on colours, 117.

Blue pigments, 32, 33, 52, 128, 129. Bole, or Armenian bole, its nature, properties, and use, 77, 145.

Bone-dust, how prepared and used for drawing, 5, 6, 7; what bones are proper, 5.

Borghini, Raffaello, supposed to have known the work of Cennino, xxvii.; his work, *Del Riposo*, contains a literal copy of many parts of Cennino's, xxviii.

Braccio, a Florentine measure of length containing 23 inches, 117.

Brown pigments, unknown to Cennino, lx.

Buildings, how to paint in fresco and secco, 54.

Burnishing, what stones are proper for, 80; how executed, 81.

Calcined Roman vitriol, vitriolo abbrucciato, red oxide of iron, used in fresco-painting, 122.

Cardinals, colour formerly worn by them, 24, 121; when changed to red, ib.

Carta bambagina, paper made of cotton, xxix.

Carta lucida: see Transparent paper.

Casts from the life, to make, 101, 102, 104, 105; to multiply plaster-casts, 106; to make in metal, 104.

Cennino Cennini, born at Colle in Tuscany, xxv., 2; pupil of Agnolo Gaddi, xxv., 2; Vasari's account of his book, xxv.; analysis of his work, by Tambroni, xxxv.-xlv.; his treatise is practical, viii.; Bandini's opinion of his work, xxvii.; Bottari's, ib.; his Ms. found in the Vatican Library, xxix.; description of the Ms., xxx.; three copies only ascertained to be extant, xxxii.; finished his Ms. on the 31st July 1437, in the Stinche prisons at Florence, xlv. lxii.; was a writer of the fourteenth century, ib.; by whom taught the art, xxv. xxxiii., 2, 42; painted a picture of the Virgin, xlv.; which is now in the Gallery at Florence, lx.; Tambroni's estimate of his character, xliii.; and of his work, ib.

Cerussa usta: see Minium.

Changeable draperies, 50, 51, 52.

Charcoal, how to draw with, 16, 73; how to efface errors in drawing with, 16; how to fix the drawing with the stile, *ib*.; how to shade with water-colours, *ib*.

Cheese-glue, to make, 66; for what used formerly, 146.

Cignerognolo, grey, 51, 139.

Cicognara, his description of an ancient picture, 148.

Cimabue, the master of Giotto, to whom the revival of painting in Italy has usually been attributed, xvi.; remarks on some of his pictures, xviii.; died in 1300, 136.

Cinabrese, its nature and properties, 22.

Cinnabar, vermilion, artificial, its nature, properties, and use, 23, 119, 120; how to prepare for frescopainting, 137; native cinnabar described, 121.

Cloth of gold, how to imitate on a gold ground, 83.

Cobalt blue, prepared from the same ore as azzurro della magna, but in its purest form, 128.

Coins, to make impressions of in wax, or paste made of ashes, 106.

Colantonio del Fiore, said to have painted in oil at Naples in 1436, lii. lxvi. lxvii.

Colla di caravella, colla forte, how prepared, 65, 145.

Colla, glue: see Part the Fifth, 63-66. Colla di pesce, fish-glue, isinglass, 65; used as mouth-glue, ib.

Colla di spicchi, 65.

Colours: see Pigments; in ancient pictures, causes of their beauty and permanence, ix. x. xii.; the old masters used but few, xi. xiii.; by what rendered liable to change, xi.; used in fresco, xii., 47; no blue among the number, xii.; to grind, 20; are of different kinds, ib.; require different vehicles, ib.;

there are seven natural colours, ib.; four are earths, ib.; three are natural, but require preparation, ib.; when ground are to be kept in glasses under water, 21; the best only should be used, 59, 142; what to be used in secco only, 47; what can be used in oil-painting, 57.

Companions, what description should be selected, 15.

Copal, brought from America, 161. Copying, recommended by Cennino, 14; Leonardo da Vinci's opinion of, 116.

Corradi, II, with what vehicle he retouched his fresco-paintings, 138.

Correggio, whence he derived the idea he afterwards carried to perfection in the "Notte," 111; what varnish he is said to have used, 162.

Cosmetics, their bad effects, 100.

Cosmo Roselli, anecdote of, 129.

term, xxxv.

Crayons of charcoal, how made, 18; black, brought from Piedmont, 19. Creato, origin and meaning of the

Crumb of bread, used to efface charcoal drawing, 7.

Dead colouring of a blue drapery for the Virgin, xii., 52.

Dead person, to colour a picture of a, 91.

De Dominici, his account of painting in oil at Naples in the 13th and 14th centuries, liii.

Deity and angels, representations of in pictures, authorised by the Roman Catholic church, 148.

Dioscorides, his description of sinopia, 118; his recipe for glue, 145.

Distemper, painting in, its advantages and disadvantages, xvi., 156; how to temper the colours for, 87; how to paint in, ib.; can be executed on gold grounds, 150; directions for softening the tints, 156; where it cannot be employed, ib.; invented by Ludius in the time of Augustus, 144.

Domenico Veneziano, the pupil of Antonello da Messina, xlvii.; his pictures dated 1470, l.

Doratura, gold size, how to gild with, 60.

Dragon's blood, nature and properties, 24, 122.

Draperies, on gold grounds, cloth of gold, 83; red, green, black, ib.; ultramarine, ib.; on silver, how executed, 85; changeable draperies, 50, 51; in fresco, 46-53; secco, 47-49; of gilded tin on walls, ib.; to imitate velvet, silk, or linen, 86; to paint in distemper, 87, 89; for the Virgin, 52, 89.

Drawing, with a stile, 5-9; on tablets of wood or parchment, 4, 5; on parchment or paper, 7; how to repair errors, ib.; with a pen, 8; on tinted paper, 8, 16; to fix outlines with ink or colours, 7; on transparent paper, 12; from nature recommended, 14; with charcoal, 16, 73; its importance, 27; outlines of figures on gold grounds, 74.

Drea Cennino, Andrea Cennino, the father of Cennino, lx.

Dryers, not used by Cennino in painting in oil, lxiii.; the only dryer mentioned is verderame, 127.

Egg tempera, how prepared, 48; recommended, 138, 156.

Encaustic painting, when discontinued,

Essential oil, discovered in some old pictures on analysing them, xvii.

Eyck, John Van, John of Bruges, Giovanni ab Eyck, his claim to the discovery of painting in oil examined, xlvi. et seq.; born in 1370; said to have discovered painting in oil in 1410, xlvii.xlix.; account of the picture painted by him for Alphonso king of Naples, liv.; now preserved in the Castel Nuovo at Naples, lxviii.

Facius, Bartholomew, a contemporary of John Van Eyck, does not attribute the invention of painting in oil to him, lv.

Factitious ultramarine, how produced, 130.

Feathers, used in effacing charcoal drawings, 73.

Fig-tree, panels made of, 5; the milky juice used in distemper painting, 48.

Figured draperies, how executed, 84, 154.

Fish in the water, to represent, 92.

Fish-glue, colla di pesce, isinglass, 13, 65.

Flemish manner of painting different from that practised in Italy, lxvii. lxviii.

Flesh, to paint, in fresco, 44; in distemper, 90; pictures require more coats of colour than walls, ib.; of a dead person, to paint, 91; of a wounded person, 92.

Flesh-colour, to make, in fresco, 43; in distemper, 90.

Fresco-painting, colours used in, xii., 47; no blue among the number, ib.; how to prepare the lime for, 39; to prepare the wall, ib.; to enlarge drawings on walls, 40; to trace the outlines of the charcoal-drawing with ochre and sinopia, ib.; to cover with mortar as much as can be

painted in one day, ib.; the process of painting, ib.; colours to be very liquid, 41; to be mixed with water only, ib.; to mark out the outlines with verdaccio, ib.; how to repair errors, 42; to paint the head of a young person as taught by Giotto, 43; every colour to be laid at once in its place, ib.; to colour an old face, 44; to paint hair and beards of many colours, 45; to colour a red drapery, 46; colours which cannot be used, 47; how the colours are to be made lighter, ib.; to make a purple colour, 50; to imitate ultramarine, ib.; also lake, ib.; every thing painted in fresco must be retouched in secco, ib.; to paint mountains, 53; to paint trees, plants, grass, ib.; is the most noble kind of painting, 134; was known to the ancients, ib.

Frescoes, ancient, those of the Greeks and of upper Italy harder than those of lower Italy, xviii.

Garlic, used in making mordants, 94; what kind proper, ib.

Germans, practised oil-painting previous to the time of Cennino, 141.

Gesso Bolognese, a kind of gypsum of which casts from life were made, 102.

Gesso grosso, described, 68; how used, ib.

Gesso sottile, how prepared, 69; how used, 70, 71; to prepare a ground with, 71.

Gesso Volterrano, its nature, 164; Vasari's account of, ib.; how used, ib.

Giallorino, Naples yellow, its nature, properties, and use, 26, 124; iron destructive of its colour, 124.

Gilding (see Gold), should be executed in damp weather, 68, 81; to temper bole for gilding, 77; verde terra, how executed, 78; process of gilding tin, 60; on panels, 78; to burnish, 81.

Giorgio da Firenze, painted in oil from 1314 to 1325, lii.

Giotto, characteristics of his style and school, viii., 109; stated by Lorenzo Ghiberti to have painted in oil, lxi.; improvements effected by him in the art of painting, 2; the pupil of Cimabue, xvi.; his manner of painting in fresco, 42; he allowed only eight faces and two parts for the length of his figures, 136; died in 1337, ib.

Giuliano the goldsmith, the possessor of Cennino's manuscript, xxv.

Giunta of Pisa, the earliest Italian painter on record, xvi.; was a disciple of the Greeks, xvii.

Glass, directed to be used in grinding orpiment, 27; its probable use, 125.

Glory, or nimbus, of gilded tin, how made on walls, 61; to make in relievo on walls, ib.; how made and gilded on pictures, 74; origin of, 143; form different at different periods, ib.

Glue, what colours may be tempered with, xii.; how to prepare it for tinting paper, 9; formerly sold by the apothecaries, ib.; colla di pasta, to make, 63; cement for fastening stones and glass vessels, 64; fishglue, 65; colla di caravella, ib.; colla di spicche, ib.; for tempering grounds for pictures, 66; for tempering azures, ib.; cheese-glue, ib.; glue is stronger in winter, 68; should be used in dry and windy weather, ib.; of various kinds much used by

the old masters, 144; recipe of Dioscorides for making, 145.

Gold grounds, to draw outlines on, 74; recommended by Cennino, 82; by whom erroneously said to have been invented, 150; their advantages, 151, 152; are non-absorbent, 153; their antiquity, xxi., 151; were very common, 152.

Gold, not to be varnished, xvi.; to adorn walls with, 58; the best should be used, ib.; to gild tin with gold size, 60; what kind proper for laying on flat surfaces, 82; what for fringes and ornaments, ib.; to distinguish good, ib.; to lay on paper in miniature-painting, 96, 97; to grind with white of egg or gumarabic, 98; to use it, ib.

Good masters, importance of studying their works, 14.

Grana: see Kermes.

Granare, to grain or mark with lines, 84, 154; description of process, 84; tool with which it is done, 84, 154.

Grass, to paint in fresco and secco, 53.

Grattare, to scrape up, description of process, 84, 154; is done with the stile, *ib*.

Greek manner of painting, xii. xvi.-xix. 109, 110.

Green pigments, 28-31; in old pictures are very bright and pure, 162; probably produced by glazing with verdigris, 127; in fresco-painting are dull, xiii.

Grinding colours, general directions, 20; preserving, 21.

Grounds (see Panels), preparation of, on ancient pictures, xix.; made of white lead and oil, 114; their antiquity, *ib*.

Gummi-fornis, supposed to mean gum used in making varnish, 161.

Gum-water, mixed with colours, 7; with gold, 99; with white lead for lights on tinted drawings, 17.

Hair, to paint, 45, 91.

Hair pencils, two kinds in use, 36; those of minever, ib.; and of hog's bristles, 37; to make, 36, 37; to preserve the tails from being moth-eaten, 38; how prepared at the present time, ib.; qualities of a good pencil, ib.

Hand, precautions to be observed in order to keep it steady, 15.

Hæmatite (see Amatita), its nature, 120, 121.

Human face, to cleanse it from paint and varnish, 99.

Incarnazione, flesh-colour, 43.

Indaco-baccadeo, or maccabeo, supposed signification of the term, 115.

Indigo, how used, 11, 29, 32, 87, 129; known to the ancients, 129.

Ink, used to fix drawings, 7, 73; mixed with water used in shading, 16; how made, 118.

Intonaco, 39, 134.

Iron, its effect on colours, xi.; iron nails on panels to be covered with tin plates to prevent rust, 67; destructive of colour of giallorino, 124; its contact with colours carefully avoided, 146.

Isinglass, colla di pesce, formerly used as mouth-glue, 145.

Kermes lake, grana, used by Cennino in imitating ultramarine, 35; its nature and properties, 132.

Lacca, lake, its nature, properties, and use, 24, 122.

Lac lake, proof that this was the lake used by Cennino, 138.

Laccio, lacci: see Allacciato.

La Magna, Germany, 126.

Lamp black, to prepare, 22; used by the ancients in making ink, 118.

Lapis amatita (see Amatita), probably the hæmatite, 121.

Lapis amatito: see Amatito.

Lapis lazzuli, or lazzari (see Ultramarine), derivation of term, 132.

Lead, its effect on colours, xi.; to cast small figures in, 106.

Leaf-gold (see Gold), how many leaves should be made from the ducat, 153.

Leonardo da Vinci, his advice as to copying, 116; as to solitude, ib.; as to varnishing verderame, 127; his method of preparing oil, 140; in the proportions of his figures he followed Vitruvius, 136; recommends varnishing pictures with oil thickened in the sun, 141; sometimes painted on linen, without a ground, 146.

Light in painting, rules for the admission of, 6.

Linen, to imitate on walls, 87.

Linseed-oil, the only oil used in painting by Cennino and Theophilus, lvii.

Lippo Dalmasio, painted in oil at Bologna in 1407, lii. lvii.; his Madonnas admired by Guido, lxvi.

Litmus, supposed to be the same as verzino, 133; how and from what prepared, ib.; its colour beautiful, but not durable, ib.

Lorenzo Ghiberti, notice of his work on painting, lx. lxi.

Lorenzo Veneziano, description of a picture by him, painted in 1368, 149. Lyes, how prepared, xv.; with what pigments used, xv., 28, 33.

Majolica, its nature and properties, 145.

Margaritone, stated by Vasari to have been the first who glued cloth on panels and gilded on bole, 150, 151.

Mastrice, glue of any kind, 33.

Megelp, propriety of using it considered, xxi.

Mello: see Mesella, 68, 69, 72.

Mesella, mella, supposed meaning of the term, 147.

Milk, mixed with brandy, used in retouching fresco-paintings, 138.

Miniature-painting, directions for, 96. Minium, red lead, its nature, properties, and use, 24, 120.

Miræus, Albertus, proves that pictures were painted in oil before 1400, lxviii.

Monks and priests, many of them were painters, 113; were acquainted with many secrets in painting and the arts, 23, 119; were the great preservers of learning during the dark ages, vi., 119.

Mordants, for laying on gold, how made, 93, 94; how used, ib.; how tempered so as to keep for any length of time, 94.

Morelli, his comments on the epitaph of Antonello da Messina, lviii.; on the work of Theophilus, li. lxv.

Mountain, to paint in fresco or secco, 53; to draw one naturally, 55.

Mouth-glue, whether used by Cennino, 145.

Muller, for grinding colours, described, 20.

Muratori, his account of an ancient work on the arts, lxii.

Naphtha, olio di sasso, formerly used in making varnish, 159; is now used in varnish prepared for the British navy, 162.

Naples yellow: see Giallorino.

Nature, should be studied, 15.

Nickel, gives a purple tint to cobalt, 129. Nut-oil, said to have been first used in painting by John Van Eyck, xlvii. xlviii.; L. da Vinci's recipe for preparing, 140.

Ochre, its nature and properties, 25, 123, 124.

Oil, whether found in old pictures, xvii. xxi.; mixed with white lead and chalk for the ground of tablets for drawing, 5; used for making parchment or paper transparent, 12, 13; to paint on walls in, 56; how to prepare by boiling, ib.; by baking in the sun, 57; to grind colours in, ib.; what colours may be used in, ib.; directions for painting in, ib.; colours mixed with, used to glaze draperies, 85, 156; used by Corradi in retouching fresco-paintings, 138; also used by Vasari, who united painting in oil with fresco, ib.; sold at Florence by the pound, 141; thickened in the sun, recommended as a varnish by L. da Vinci, ib.: see Painting.

Olio d' abezzo, resin of the pine, 159. Olio di sasso, naphtha, 159.

Olive-oil, used for greasing things not required to dry, 13.

Oro di metà, 58, 99.

Oro musivo, 163.

Orpiment, its nature, properties, and use, 27, 124, 125.

Oxygen, its effect on colours, xi.

Pagonazzo, purple or morello colour;

to make a drapery of this colour in fresco, 50.

Paint, to remove from the human face, 99.

Painters, the old painters principally employed on scriptural subjects, 113.

Painting (see Fresco, Secco, Oil, Distemper, and Miniature), various methods employed on one picture, xliii., 156.

Painting in oil, Vasari's account of the invention, xlvi.; taught by Theophilus in a work written before the eleventh century, li.; practised at an early period in Germany, li. lv. lviii.: and in England, ib.; also by Giotto at Rome, lxi.

Palette-knife, described, 21.

Panels, preparation, 4, 6, 70, 72; what wood proper, 4, 5, 67; to gild, 78.

Paper, how to draw on, 7; tinted, how made, 9; transparent, how made, 12, 13.

Parchment, to prepare and draw on, 5, 7; to tint, 9-12; how it may be made transparent, 13; to fix drawings on, ib.; to burnish, 10.

Parri Spinelli, his manner of painting, 135.

Pasciani, his manner of painting in fresco, 135.

Patronage, meaning of the term, 154. Pen, how to be made for drawing, 8; to draw with, ib., 17.

Pennello mozzetto, mozzo, meaning of the term, 116.

Perspective, whether understood by Cennino, 139, 140.

Pezzuole, or pezzette di levante, how used, 7; what it is, xxxvii., 114.

Pictures, in the early stages of the art the subjects were of a religious nature, vii.; characteristics of early, ib.; results of analysis of, xvii., 149; preparation of grounds, xix.; points on which to form an opinion of their antiquity, ib.; to paint in oil, 58; in distemper, 87; after painting on walls, proceed to paint pictures, 62; to acquire the art of painting, 63; how to begin to paint, 67; to lay bole on, 77; painting the proper employment of a gentleman, 87; to imitate varnish on, 96; description of ancient pictures, 148, 149, 155.

Pigments (see Colours), to grind, 20. Pitch, mixed with wax for making relievos, 76.

Plaster: see Gesso and Casts.

Polpastrello, 114, 158.

Porphyry, the best stone for grinding colours, 20.

Porporina, its nature and properties, 98.

Pounce, called vernice da scrivere, lxii.

Powdered draperies, how made on gold grounds, 84, 153.

Precious stones, how affixed to pictures, 74.

Proportion, to be studied, in what manner, 16.

Proportions, of the human figure, 45; no woman perfectly proportioned, *ib.*; according to Giotto and Cennino, 45, 136; according to Vitruvius and L. da Vinci, 136.

Pupils, must draw every day, 6, 15; must practise drawing for one year, 8, 63; and painting for twelve years, 63; how to regulate their lives, 15; what company to select, 15.

Purple, lake and ultramarine in secco, 49; indigo and amatito in fresco, 50.

Purpurissum, a red colour mentioned

by Pliny, probably the same as pezzuole, 114.

Rabesco, meaning of term, 155.

Radire, 63.

Raffaello, what colours chiefly used by him, xiii.

Raffietto, 69.

Red pigments, 22-25.

Relevare, 63.

Relievo, to make glories on walls in, 61; to grind and temper gesso for works in, 71; how executed on pictures, 74, 75; on walls, 75; in lime, 76; with varnish or wax, ib; to cut in stone, ib.; remarks on relievos on pictures, 147.

Religion, its influence on the arts, vi., 113.

Resinous varnishes, whether found in old pictures, xvii. xxi.; whether they can be mixed with colours, xxi.

Retouching fresco paintings, 50, 138. Richard the Second of England, whether an historical picture of him at Wilton is painted in oil, lii. lxvi.

Ring-finger, the fore-finger, 158.

Risalgallo, realgar, red orpiment, its nature, properties, and use, 27, 125, 126.

Rosaccio, used instead of verdaccio by succeeding painters, 137.

Rosetta, the tool used in graining, 84, 154.

Rossetta, red colour in the cheeks and lips, 42, 43, 90.

Rubrics, origin of the term, 145.

Sandarac, used for varnish, 161; pounded, constitutes "pounce," lxii. Seals, to make impressions of, 106.

Secco, painting on walls in, colours and temperas, 47; preparation of

walls, ib.; to paint draperies in, | Terra verde, its nature and properties, 49, 87.

Seppia, bone of the cuttle-fish, used to smooth panels for drawing, 4.

Serafino Serafini, painted in oil in 1385, lii.

Serpentine, what stone meant by this term, 117.

Silk, to imitate on walls, 86.

Silver, liable to tarnish, 58; children should be taught to lay on silver, as it is less expensive than gold, 85.

Sinopia, its nature and properties, 22. 118, 119.

Smalt, prepared from cobalt, 128. Soda, its effect on colours, xv.

Sommesso, 114.

Spatula, or palette-knife, of wood described, 21.

Stagnuoli, 58.

Stars, to make and put on walls, 60. Stile, 6, 7; described, 84, 154; used

for drawing, 5, 6.

Stinche, prisons for debtors at Florence, xlv.; Cennino dated his book from thence, lxii.

Stones, for grinding colours, what are best, 20.

Sulphuretted hydrogen, its effect on pigments, xi.

Tablets for drawing, 5.

Taddeo Gaddi, the godson of Giotto, 2; his favourite pupil for twenty-four years, 2, 111; his character as an artist, 111.

Teeth, of carnivorous animals used for burnishing gold, 80.

Temperas, for gilding, 77, 78; for painting on walls in secco, 47; for painting in distemper, 87; for laying gold on paper when painting miniatures, 96.

28, 126,

Theophilus, account of his work on the arts, li. lvii.; quotations and extracts from, li., 147, 159; supposed by Cicognara to have been an Italian, li.; his recipes for varnish, 159.

Tiarini, ascertained that a picture painted by Lippo Dalmasio at Bologna was painted in oil, lii.

Tin, to adorn walls with, 58; to cut and use gilded tin, 59, 60; to make green tin, 59; to gild with gold size, 60; stars, to make and put on walls, ib.; how to be used for glories of saints on walls, 61; to make draperies of gilded tin, 85.

Tinted paper, to prepare, 9-12; to draw on, 8-16.

Titian, what colours used by him, xiii.

Tommaso da Modena, some remarks on his pictures, lii. lxv.

Transparent paper, carta lucida, preparation and use, 12-14.

Trees, to paint in fresco and secco, 53.

Ultramarine ashes, how prepared, 132. Ultramarine, nature and properties, xiv., 33, 129; preparation, 33, 129, 131; factitious, to prepare, 130; how imitated, 35, 50, 89; to paint draperies of, 52, 83, 85, 89.

Van Eyck: see Eyck.

Varnish, its properties, 95; dries in the sun, ib.; if to dry in the shade, it must be boiled, ib.; how to execute relievos with, 76; white of egg varnish, 96; Theophilus' recipes for, 159; of Correggio, 162; of Cennino probably an oil varnish, 159; what

now used in the British navy, 162; supposed derivation of the word, 161.

Varnishing, whether a picture should be varnished as soon as finished, xv., 95; pictures, the process, 95; proper time and place; gold not to be varnished, ib.; parts of pictures were frequently varnished, xvi.

Vasari, proofs of his inaccuracy, xxxvii. li. liii., 142; that he never read the whole of Cennino's work, 119, 142; his directions for grinding gold, 163.

Vehicles, mediums, or temperas, for painting; several used on the same picture, xiii., 156.

Velvet drapery, to imitate on walls, 86. Venetians, supplied the rest of Europe with the merchandise of the East, xxxvii., 115, 122.

Verdaccio, a compound colour, 41, 53; the same colour called bazzeo at Siena, ib.

Verde azzurro, blue or cobalt-green, its nature and properties, 29, 127.

Verde terra, its nature, preparation, and use, 28; to gild with, 78; to varnish, 98; its properties, 126.

Verderame, its nature, preparation, and use, 30, 127, 143.

Verjuice, its nature and properties, 30.

Vermilion: see Cinnabar.

Vernice liquida (see Varnish), liquid varnish, 161.

Vernice da scrivere, xxxix., 161; how used in drawing, 7.

Verzino, used in imitating ultramarine, 35; supposed to be litmus or archil, 132.

Vestorian, or Egyptian blue, how imitated, xv.

Volterrano, a kind of gypsum used in preparing grounds for pictures and taking casts, 68, 102, 164.

Walls, to paint on in fresco, 39; in secco, 47; in oil, 56; method described by Vasari different from that of Cennino, 137, 141.

Walpole proves that painting in oil was practised in England before the time of Van Eyck, lii.

Water, to colour, 92.

Water-colours for drawing, how mixed, 7; for shading, 16; to draw with on tinted paper, ib.

Wax, during what periods used in painting, xvii.; when its use discontinued, ib.; how to execute relievos in, 76.

White of egg, its use in the arts, 7, 48, 78, 96, 99, 162.

White grounds, their advantages, ix. x. White pigments, 31, 32.

Women, why they should abstain from using medicated waters on their skin, 100; of Florence, particularly inclined to use paint on their faces, ib.

Wounded person, to colour a representation of, 92.

Yellow pigments, 25-28, 152.

Yolk of an egg, its use in the arts, xii., 48, 88, 100, 138.

Zafferano, its nature, preparation, and use, 28.

Zaffre, how prepared from cobalt, 128.

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